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18-11000
JSC-12947
part 2 of 4

NEAR EARTH PHOTOGRAPHS FROM THE APOLLO MISSIONS
AND THE APOLLO-SOYUZ TEST PROJECT

By

L. E. Giddings

NASA CR.

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Houston, Texas

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Houston, Texas

August 1977

LEC-11026
part 2 of 4

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1790	61	10/15	Fall	97:05	10:08	43°	29°58'N	90°22'W	1:2,410,000	H-24		94	20	GEOGRAPHY/CARTOGRAPHY: Louisiana, New Orleans, Lake Pontchartrain Area. (Dark) GEOLOGY/HYDROLOGY: Low alluvial plain. METEOROLOGY: Cumulus.
1791	61	10/15	Fall	97:05	10:13	43°	30°45'N	88°20'W*		H-24		94		GEOGRAPHY/CARTOGRAPHY: Alabama, Mobile Area. (Dark) Too dark to extract any other information.
1792	61	10/15	Fall	97:05	10:10	45°	29°00'N	89°40'W*		H-24		93	22	GEOGRAPHY/CARTOGRAPHY: Louisiana, Mouth of Mississippi River Delta. (Dark) METEOROLOGY: Cumulus. Too dark to extract any other information.
1793	61	10/15	Fall	97:06	10:19	45°	30°10'N	87°30'W*		H-24		93	04	GEOGRAPHY/CARTOGRAPHY: Florida, Pensacola Area. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus.
1794	61	10/15	Fall	97:06	10:26	46°	30°00'N	86°01'W	1:2,812,500	H-24		97	08	GEOGRAPHY/CARTOGRAPHY: Florida, Apalachicola Area. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Strato-cumulus.
1795	62	10/15	Fall	98:32	09:51	41°	31°00'N	116°00'W	1:5,750,000	H-22		97	04	GEOGRAPHY/CARTOGRAPHY: Mexico; Baja, California; Punta Colnett, Sierra San Pedro, Matir Mts. (Normal) GEOLOGY/HYDROLOGY: Narrow coastal plain, plateau and complex fold - mountain range - trellis drainage. METEOROLOGY: Cumulus.
1796	62	10/15	Fall	98:33	10:08	43°	30°42'N	111°58'W	1:3,000,000	H-22		96	03	GEOGRAPHY/CARTOGRAPHY: Mexico: Sonora, Caborca, Rio Magdalena. (Normal) GEOLOGY/HYDROLOGY: Complex hills, plateau and alluvial plains, dendritic drainage. METEOROLOGY: Cumulus. AGRICULTURE: Field patterns, grazing land.
1797	62	10/15	Fall	98:35	10:27	46°	30°24'N	107°42'W		H-23		94	07	GEOGRAPHY/CARTOGRAPHY: Mexico: Nuevo Casas Grancelo, Rio de Santa Maria, Rio de Casas Grandes. (Normal) GEOLOGY/HYDROLOGY: Complex plateau and folded mountains, trellis drainage. METEOROLOGY: Towering cumulus. FORESTRY: Forest along major streams.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1798	62	10/15	Fall	98:35	10:32	46°	30°08'N	106°37'W			H-23	94	1	GEOGRAPHY/CARTOGRAPHY: Mexico: Villa Alameda, Laguna de Paton. (Normal) GEOLOGY/HYDROLOGY: Complex range, alluvial plain, and dendritic drainage. METEOROLOGY: Cumulus. AGRICULTURE: Field patterns in the valley.
1799	62	10/15	Fall	98:36	10:52	49°	29°15'N	101°56'W			H-23	92	21	GEOGRAPHY/CARTOGRAPHY: Mexico - U.S., Texas Border Comstock, Rio Grande, Gueirras Del Burros. (Normal) GEOLOGY/HYDROLOGY: Complex and volcanic range and alluvial regions with trellis drainage. METEOROLOGY: Towering cumulus. FORESTRY: Intermittent forest lands on hills.
1800	62	10/15	Fall	98:38	11:14	52°	28°19'N	96°14'W	1:6,540,000		H-24	91	16	GEOGRAPHY/CARTOGRAPHY: Matagorda Bay, Port Lavaca, Texas--urban development--regional transportation network. (Normal) GEOLOGY/HYDROLOGY: Coastal plain with a shoreline of emergence. METEOROLOGY: Cumulus. OCEANOGRAPHY: Temperature and depth differences along coastal waters with distinct currents noted.
1801	62	10/15											98	METEOROLOGY: Hurricane Gladys, Gulf of Mexico. (Dark)
1802	63	10/15	Fall	100:12	12:59	60°	14°00'N	94°00'W*				88	80	GEOGRAPHY/CARTOGRAPHY: Mexico: Tehuantepec Area. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, thick cirrus.
1803	64	10/15	Hot-Wet	100:24	15:31	29°	04°00'S	59°00'W*				102	52	GEOGRAPHY/CARTOGRAPHY: Brazil, Amazon Basin. (Dark) METEOROLOGY: Cumulus-nimbus, strato-cumulus, thick cirrus. Too dark to extract any other information.
1804	64	10/15	Hot-Wet	100:26									53	GEOGRAPHY/CARTOGRAPHY: Northwestern Brazil. (Dark) GEOLOGY/HYDROLOGY: Low dissected plateau, trellis drainage. METEOROLOGY: Cumulus-nimbus, strato-cumulus, cirrus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1805	64	10/15	Spring	100:27	16:37	19°	11°35'S	43°20'W*				108	23	GEOGRAPHY/CARTOGRAPHY: South Africa. (Dark) METEOROLOGY: Towering cumulus, cirrus.
1806	64	10/15	Spring	100:29	16:56	15°	14°10'S	39°10'W*				110	15	GEOGRAPHY/CARTOGRAPHY: South Africa, near Durban. (Dark) METEOROLOGY: Small cumulus, towering cumulus.
1807	64	10/15	Spring	101:51	15:40	32°	03°00'S	78°30'W*				100	54	GEOGRAPHY/CARTOGRAPHY: Ecuador, Peru, Gulf of Guanacuil. (Dark) GEOLOGY/HYDROLOGY: Complex coastal mountain range and a shoreline of submergence. METEOROLOGY: Strato-cumulus, cirrus.
1808	66	10/15	Spring	103:30	18:01	02°	23°00'S	68°00'W*				122	8	GEOGRAPHY/CARTOGRAPHY: Chile, coast north of Antofagasta. (Light) GEOLOGY/HYDROLOGY: Complex mountains of the Andes, parallel to the coast.
1809	68	10/16	Fall	107:19	7:54	25°	26°20'N	83°00'E*				110	14	GEOGRAPHY/CARTOGRAPHY: Nepal, India, Tibet, Himalayas, Ganges Plains, Annamurra, Dhaulagiri. (Light) GEOLOGY/HYDROLOGY: Complex mountains and alluvial plains. FORESTRY: Mountains forested.
1810	72	10/16	Cool-Dry	113:35	13:58	54°	09°45'N	76°20'E	1:4,000,000		K-8	90	46	GEOGRAPHY/CARTOGRAPHY: India: coast at Alleppey, Laccadiva Sea, Cochin. (Dark) GEOLOGY/HYDROLOGY: Coastal plain and shoreline of emergence. METEOROLOGY: Cumulus, alto-cumulus, cirrus.
1811	72	10/16	Cool-Dry	113:36	13:51	54°	08°47'N	77°58'E	1:4,306,000		K-8	91	48	GEOGRAPHY/CARTOGRAPHY: India: southwest coast. (Normal) GEOLOGY/HYDROLOGY: Coastal lowland and deltaic plain. METEOROLOGY: Cumulus, thick cirrus, alto-cumulus. FORESTRY: Intermittent forest and short shrubs along rivers. OCEANOGRAPHY: Ocean depth differences indicating the extent of the continental shelf.

FRAME NUMBER	LIBRARY	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV.	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1812	72	10/16	Cool-Dry	113:37	13:51	51°	09°27'N	80°15'E	1:2,200,000		K-8	91	37	GEOGRAPHY/CARTOGRAPHY: Ceylon: Palk Bay, Palk Strait, Jaffna, Delft Island, Point Pedro. (Normal) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus, alto-cumulus, cirrus. FORESTRY: Intermittent forest land.
1813	72	10/16	Cool-Dry	113:37	14:00	51°	09°00'N	80°00'E*	1:6,250,000		K-8	91	55	GEOGRAPHY/CARTOGRAPHY: Ceylon, Adair's Bon'dge. (Normal) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus, alto-cumulus, cirrus.
1814	72	10/16	Spring	113:50	17:01	13°						113	03	GEOGRAPHY/CARTOGRAPHY: Western Australia, Roebuck Bay. (Dark) METEOROLOGY: Cumulus.
1815	72	10/16	Spring	113:50	16:59	13°	18°20'S	121°30'E*				113	05	GEOGRAPHY/CARTOGRAPHY: Western Australia, Roebuck Bay, 80 mile beach. (Dark) METEOROLOGY: Cumulus.
1816	72	10/16	Spring	113:51	17:20	11°	21°00'S	124°00'E*				115	04	GEOGRAPHY/CARTOGRAPHY: Western Australia: Percival Lakes, Lake Disappointment. (Dark) METEOROLOGY: Cumulus.
1817	72	10/16	Spring	113:51	17:41	06°	22°13'S	129°05'E	1:4,000,000		P-13	118	00	GEOGRAPHY/CARTOGRAPHY: Western Australia, Lake Mae Ray. (Dark) GEOLOGY/HYDROLOGY: Dry lake basin.
1818	75	10/16	Fall	117:57	12:26	58°	21°11'N	11°15'W			J-2	89		GEOGRAPHY/CARTOGRAPHY: Mauritania. (Light) GEOLOGY/HYDROLOGY: Low plateau and dome structure.
1819	78	10/16	Fall	122:18	11:00	51°	29°30'N	95°30'W*				92	50	GEOGRAPHY/CARTOGRAPHY: Gulf coast, Corpus Christi. (Light) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, alto-cumulus.
1820	78	10/16	Fall	122:18	10:53	51°	28°30'N	97°00'N				92	20	GEOGRAPHY/CARTOGRAPHY: Texas: Gulf coast, Corpus Christi. (Light) METEOROLOGY: Cumulus.

FRAME NUMBER	ORIGI	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1821	78	10/16	Fall										50	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Light) METEOROLOGY: Towering cumulus.
1822	78	10/16	Fall										94	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1823	78	10/16	Fall										100	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Light) METEOROLOGY: Hurricane Gladys.
1824	78	10/16	Hot-Wet	122:35	15:16	38°	05°00'S	35°30'W*				98	30	GEOGRAPHY/CARTOGRAPHY: Brazil, Cago de Sao Roque. (Normal) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, cirrus.
1825		10/16											50	METEOROLOGY: Cumulus, alto-cumulus, cirrus. (Normal)
1826	81	10/16	Spring	127:11	17:36	05°	23°18'S	69°35'W	1:4,884,400		P-26 Q-26	117	4	GEOGRAPHY/CARTOGRAPHY: Chile: coast at Antofagasta, Pacific Atacama Moreno, Baia de Mejillones Del Sur, Salos de Atacama Lebe. (Normal) GEOLOGY/HYDROLOGY: Complex and sedimentary hills and mountains, with salt flats in the lower regions. METEOROLOGY: Cumulus, stratus.
1827	81	10/16	Spring	127:11	17:42	06°	24°09'S	70°29'W	1:4,411,800		P-26 Q-26	117	4	GEOGRAPHY/CARTOGRAPHY: Chile: coast of Antofagasta, Pacific Ocean, Baia de Moreno, Atacama Desert. (Dark) GEOLOGY/HYDROLOGY: Complex mountains adjacent to the coast, with alluvial deposits on the lower areas. METEOROLOGY: Small cumulus, strato-cumulus.
1828	81	10/16	Spring	127:11	17:44	06°	25°00'S	71°00'W*				117	31	GEOGRAPHY/CARTOGRAPHY: Chile, South of Antofagasta. (Dark) GEOLOGY/HYDROLOGY: Complex mountain region with a shoreline of emergence. METEOROLOGY: Cumulus, strato-cumulus.
1829	81	10/16	Spring	127:12	17:47	03°	25°00'S	69°00'W*				118		GEOGRAPHY/CARTOGRAPHY: Argentina: Andes Mountains, Sillar Del Hombre Muerto. (Dark) GEOLOGY/HYDROLOGY: Folded sedimentary and complex mountains.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
	1968												
1830	81	10/16	Spring	127:12	17:51	03°	25°00'S	66°00'W*			118	16	GEOGRAPHY/CARTOGRAPHY: Argentina: Andes Mountains, Salar Del Hombre Muerto. (Dark) GEOLOGY/HYDROLOGY: Complex mountain region. METEOROLOGY: Strato-cumulus. FORESTRY: Intermittent forest lands.
1831	83	10/17	Fall	131:11	17:41	52°	26°58'N	128°24'E		H-13	93	31	GEOGRAPHY/CARTOGRAPHY: Okinawa, Island of Aruseri Gunto. (Light) GEOLOGY/HYDROLOGY: Volcanic islands. METEOROLOGY: Cumulus, cirrus. FORESTRY: Intermittent forest lands. AGRICULTURE: Field patterns along the coast. OCEANOGRAPHY: Ocean depth variations.
1832	84	10/17	Cool-dry	132:21	08:02	23°	29°50'N	69°10'E		H-8	118	00	GEOGRAPHY/CARTOGRAPHY: Pakistan: Toba, Kakar and Sulaiman Ranges near Pret Sandeuen. (Dark) GEOLOGY/HYDROLOGY: Highly folded sedimentary mountains.
1833		10/17										4	METEOROLOGY: Cumulus. (Dark)
1834	86	10/17										90	METEOROLOGY: Cumulus, alto-cumulus, cirrus. (Light)
1835			Cool-Dry	135:48	13:29	58°	09°30'N	99°30'E*			89	90	GEOGRAPHY/CARTOGRAPHY: Thailand, Gulf of Siau, Surat Inewi, Sumai Island. (Normal) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, alto-cumulus, cirrus. AGRICULTURE: Field patterns. FORESTRY: Intermittent forest lands.
1836	80	10/17	Cool-Dry	135:48	13:31	58°	09°30'N	99°55'E		K-9	89	58	GEOGRAPHY/CARTOGRAPHY: Thailand, Gulf of Siau, Coast east of Surat Thani, Sauri Island. (Light) METEOROLOGY: Cumulus, alto-cumulus, cirrus. FORESTRY: Densely forested.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1837	86	10/17	Cool-Dry	135:49	13:35	58°	07°00'N	101°00'E				89	67	GEOGRAPHY/CARTOGRAPHY: Thailand: Gulf of Siam, Pattani. (light) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus-nimbus, cirrus. AGRICULTURE: Field patterns. FORESTRY: Densely forested.
1838	86	10/17	Hot-Wet	135:49	13:43	58°	05°26'N	102°55'E	1:5,312,500		L-10	89	65	GEOGRAPHY/CARTOGRAPHY: Malaysia, Melaya, West Coast of Kota Bharu. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, strato-cumulus, cirrus. AGRICULTURE: Field patterns, subsistence farming along coastal areas. FORESTRY: Densely forested.
1839	86	10/17	Hot-Wet	135:49	13:43	58°	03°14'N	102°57'E	1:5,300,000		L-10	89	74	GEOGRAPHY/CARTOGRAPHY: Malaysia, Melaya, East Coast from Chukai to Paleng River. (Dark) GEOLOGY/HYDROLOGY: Coastal plain and perennial drainage. METEOROLOGY: Cumulus, thick cirrus. AGRICULTURE: Scattered fields. FORESTRY: Densely forested.
1840	86	10/17	Spring	135:58	15:42	32°	12°30'S	130°20'E			N-13	101	50	GEOGRAPHY/CARTOGRAPHY: Australia: Northern Territory, Darwin. (Dark) METEOROLOGY: Cumulus, cirrus.
1841	86	10/17	Hot-Wet	135:58	15:42	32°	12°47'S	130°09'E	1:5,500,000		N-13	101	30	GEOGRAPHY/CARTOGRAPHY: Australia: Northern Territory, Darwin, Small Section of Bathurst Island. (Dark) GEOLOGY/HYDROLOGY: Coastal lowland and shoreline of submergence. METEOROLOGY: Cumulus, cirrus.
1842	86	10/17	Hot-Wet	135:59	16:04	26°	14°16'S	135°38'E	1:8,333,300		N-14	103	15	GEOGRAPHY/CARTOGRAPHY: Australia: Gulf of Carpentaria, Grose Eylandt, Roper River. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region with intermittent drainage. METEOROLOGY: Cumulus. FORESTRY: Intermittent forest lands.

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							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1843	86	10/17	Fall	135:59	16:04	26°	15°16'S	135°38'E	1:4,777,800		N-14	103	3	GEOGRAPHY/CARTOGRAPHY: Australia, Gulf of Carpentaria, Vanu Island, Lewis Eight River. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus. FORESTRY: Forest along coastline and streams. OCEANOGRAPHY: Ocean depths variations.
1844	86	10/17	Spring	136:00	16:21	23°	16°58'S	139°30'E	1:3,000,000		P-14	104	5	GEOGRAPHY/CARTOGRAPHY: Australia, Gulf of Carpentaria, Wallisley and South Wallisley Islands. (Dark) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus. AGRICULTURE: Scattered field patterns along the coastline. FORESTRY: Intermittent forest lands. OCEANOGRAPHY: Ocean depth variations.
1845	86	10/17	Spring	136:00	16:33	20°	17°50'S	142°55'E			P-14	106	9	GEOGRAPHY/CARTOGRAPHY: Australia, Queensland, Great Dividing Range, Eimaleigh River. (Dark) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus. FORESTRY: Forested along river.
1846	86	10/17	Spring	136:01	16:52	18°						108	12	GEOGRAPHY/CARTOGRAPHY: Australia. (Dark) METEOROLOGY: Cumulus.
1847	86	10/17	Spring	136:01	16:52	18°						108	10	GEOGRAPHY/CARTOGRAPHY: Australia. (Dark) METEOROLOGY: Cumulus.
1848	86	10/17	Cool-Dry	136:02	16:48	18°						109	8	GEOGRAPHY/CARTOGRAPHY: Australia. (Dark) METEOROLOGY: Cumulus.
1849	87	10/17	Cool-Dry	137:17	13:34	58°	08°30'N	78°25'E	1:3,000,000		K-8	88	59	GEOGRAPHY/CARTOGRAPHY: India, Southern Tip, East Coast of Thucoria. (Normal) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus, thick cirrus. AGRICULTURE: Small fields.

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							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1850	87	10/17	Cool-Dry	137:17	13:42	56°	08°00'N	80°30'E*				89	54	GEOGRAPHY/CARTOGRAPHY: Northern Ceylon. (Normal) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulus, thick cirrus, alto-cumulus. FORESTRY: Intermittent forest lands.
1851	87	10/17	Cool-Dry	137:18	13:44	57°	06°05'N	80°36'E			L-8	89	50	GEOGRAPHY/CARTOGRAPHY: Ceylon, Southern Coast Cible. (Light) GEOLOGY/HYDROLOGY: Coastal plain and complex plateau. METEOROLOGY: Cumulus, alto-cumulus. FORESTRY: Intermittent forest lands.
1852	87	10/17	Spring	137:34	16:45	16°	17°00'S	122°00'E*				108	16	GEOGRAPHY/CARTOGRAPHY: Western Australia, King Sound. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Strato-Cumulus.
1853	87	10/17	Spring	137:34	16:45	16°	19°00'S	122°00'E*				109	6	GEOGRAPHY/CARTOGRAPHY: Western Australia, La Grange Bay. (Dark) GEOLOGY/HYDROLOGY: Coastal Plain. METEOROLOGY: Strato-cumulus.
1854	87	10/17	Spring	137:34	16:52	15°						110	4	GEOGRAPHY/CARTOGRAPHY: Western Australia, Great Sandy Desert. (Dark) METEOROLOGY: Strato-cumulus.
1855	87	10/17	Spring	137:34	17:01	14°	18°30'S	126°00'E*				111	00	GEOGRAPHY/CARTOGRAPHY: Western Australia, Fitgrog and Margaret Rivers. (Dark) FORESTRY: Forested along streams.
1856	87	10/17	Spring	137:35	17:09	10°	28°58'S	138°58'E			Q-14	112	00	GEOGRAPHY/CARTOGRAPHY: Western Australia, Gregory Lake. (Dark) GEOLOGY/HYDROLOGY: Lowland basin. FORESTRY: Decidua along streams.
1857	87	10/17	Spring	137:35	18:14	10°	22°38'S	128°44'E	1:2,900,000		P-13	113	00	GEOGRAPHY/CARTOGRAPHY: Western Australia, Northern Territory, Lake Muckay, Great Sandy Desert. (Dark) GEOLOGY/HYDROLOGY: Partially dry lake basin in the lowland plains.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
1858	87	1969 10/17	Spring	137:36		09°						114	00	GEOGRAPHY/CARTOGRAPHY: Australia: Northern Territory, near Alice Springs.
1859	87	10/17	Spring	137:36	17:28	08°						115	00	GEOGRAPHY/CARTOGRAPHY: Australia: Northern Territory MacConnell Passes, Alice Springs. (Dark) GEOLOGY/HYDROLOGY: Folded sedimentary mountain region.
1860	87	10/17	Spring	137:37		07°						116	00	GEOGRAPHY/CARTOGRAPHY: Australia: Northern Territory, near Alice Springs. (Dark) GEOLOGY/HYDROLOGY: Folded mountain region.
1861	90	10/17	Hot-Wet	141:50	14:51	43°	03°30'S	29°30'E*					48	GEOGRAPHY/CARTOGRAPHY: Tanzania, Burundi Republic of Congo, Lake Tanganyika. (Light) GEOLOGY/HYDROLOGY: Coastal lowland and complex plateau bounded by rift valley. METEOROLOGY: Cumulus. FORESTRY: Savanna grassland.
1862	90	10/17	Hot-Wet	141:50	14:21	43°	04°45'S	29°32'E	1:2,222,200		M-4	98	26	GEOGRAPHY/CARTOGRAPHY: Tanzania, Burundi Republic of Congo, Lake Tanganyika, Kigera, Ujiji. (Light) GEOLOGY/HYDROLOGY: Complex plateau and coastal plain. METEOROLOGY: Cumulus, cirrus. AGRICULTURE: Field patterns along the lake.
1863	90	10/17	Fall	142:51	07:32	17°	31°30'N	95°30'W*				112	31	GEOGRAPHY/CARTOGRAPHY: Texas: Waco, Fort Worth, Dallas. (Normal) GEOLOGY/HYDROLOGY: Central plains. METEOROLOGY: Cumulus, alto-cumulus. FORESTRY: Intermittent forest lands.
1864	90	10/17	Fall	142:51	07:38	19°	29°00'N	94°00'W*				112	50	GEOGRAPHY/CARTOGRAPHY: Texas: Houston Area. (Light) GEOLOGY/HYDROLOGY: Coastal plains. METEOROLOGY: Cumulus, alto-cumulus.
1865	90	10/17	Fall	142:51								111	5	GEOGRAPHY/CARTOGRAPHY: Texas. (Normal) METEOROLOGY: Cumulus, cirrus.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
	1968												
1866	10/17	Fall	142:52	07:37	17°	33°30'N	94°30'W				111	10	GEOGRAPHY/CARTOGRAPHY: Texas, Louisiana, Red River North to Shreveport. (Normal) METEOROLOGY: Strato-cumulus.
1867	10/17	Fall	143:09	12:56	64°	15°00'N	19°00'W				86	25	GEOGRAPHY/CARTOGRAPHY: Cape Verde Islands in East Pacific off Mauritania. (Normal) GEOLOGY/HYDROLOGY: Volcanic islands. METEOROLOGY: Clouds in the horizon. OCEANOGRAPHY: Ocean depth variations.
1868	10/17	Cool-Dry	143:12	13:29	60°	06°40'N	11°40'W				87	80	GEOGRAPHY/CARTOGRAPHY: Sierre Leon: Coast East of Shebur Strait. (Normal) GEOLOGY/HYDROLOGY: Coastal lowland. METEOROLOGY: Cumulus, alto-cumulus. AGRICULTURE: Field patterns along coastal areas. FORESTRY: Savanna grassland.
1869	10/17	Hot-Wet	143:20	15:19	38°	09°37'S	13°22'E	1:4,000,000		N-3	98	27	GEOGRAPHY/CARTOGRAPHY: Angola: Coast at Luanda, Rio Cuanza, Gulf of Guinea. (Light) GEOLOGY/HYDROLOGY: Narrow coastal plain and complex plateau. METEOROLOGY: Cumulus, alto-cumulus, cirrus. AGRICULTURE: Field patterns along the coastal areas. FORESTRY: Savanna grassland.
1870	10/17	Fall	144:26	09:13	36°	79°00'N	94°00'W				101	28	GEOGRAPHY/CARTOGRAPHY: Texas: Houston Area, Galveston Bay, Lake Houston, Brazos River, Colorado River, regional and local Houston highway network. (Dark) GEOLOGY/HYDROLOGY: Flat lowland and coastal plain. METEOROLOGY: Cumulus, alto-cumulus. FORESTRY: Scattered forest lands in predominantly prairie grassland.
1871	10/17	Fall	144:26	09:15	36°	29°00'N	94°30'W				101	40	GEOGRAPHY/CARTOGRAPHY: Texas: Houston Area, Galveston Bay, Lake Houston, Brazos River, highway network. (Dark) GEOLOGY/HYDROLOGY: Flat lowland and coastal plain. METEOROLOGY: Towering cumulus, alto-cumulus. FORESTRY: Scattered forest lands in predominantly prairie grassland.

FRAME NUMBER	LIBR ID	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1872	91	10/17	Fall	144:26	09:16	36°	29°31'N	94°53'W	1:5,000,000		H-24	101	35	GEOGRAPHY/CARTOGRAPHY: Texas: Houston Area, Galveston, Lake Houston, Brazos River, local and regional highway network. (Dark) GEOLOGY/HYDROLOGY: Flat lowland and coastal plain. METEOROLOGY: Towering cumulus, alto-cumulus. FORESTRY: Scattered forest lands in predominantly prairie grassland.
1873	91	10/17	Fall	144:26	09:18	36°	29°12'N	95°17'W	1:5,000,000		H-24	101	25	GEOGRAPHY/CARTOGRAPHY: Texas: Houston Area, Galveston Bay, Lake Houston, Brazos River, local and regional transportation network. (Dark) GEOLOGY/HYDROLOGY: Flat lowland and coastal plain. METEOROLOGY: Towering cumulus, alto-cumulus. FORESTRY: Scattered forest lands in predominantly prairie area.
1874	91	10/17	Fall	144:27		45°						99	4	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Light) METEOROLOGY: Hurricane Gladys.
1875	91	10/17	Fall	144:27		45°						99	64	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1876	91	10/17	Fall	144:28		45°						99	99	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1877	91	10/17	Fall	144:28		45°						99	92	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1878	91	10/17	Fall	144:28		45°						99	90	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1879	91	10/17	Fall	144:28		45°						99	90	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. (Dark) METEOROLOGY: Hurricane Gladys.
1880	103	10/18	Spring	162:44	17:23	09°	26°50'S	114°00'E	1:6,250,00		Q-12	112	11	GEOGRAPHY/CARTOGRAPHY: Shark Bay, Western Australia. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Strato-cumulus.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
1880 (cont'd)	1968												FORESTRY: Dense shrubform changing to scattered shrubform and grassland. OCEANOGRAPHY: Some wave action along coastline.
1881	103	10/18	Spring	162:44	09°	26°13'S	114°45'E	1:3,000,000		Q-12	112	02	GEOGRAPHY/CARTOGRAPHY: Shark Bay, Western Australia. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region. FORESTRY: Intermittent shrubform and coastal savanna grass. OCEANOGRAPHY: Coastal shallows, sand bars.
1882	103	10/18	Spring	162:45	05°	24°40'S	113°57'E			Q-12	113	00	GEOGRAPHY/CARTOGRAPHY: Lakes Austin, Barlee, Ballard, Salt Lakes, Western Australia. (Dark)
1883	104	10/18	Hot-Wet	164:02	59°	02°22'S	40°32'E	1:4,740,000		M-5	88	75	GEOGRAPHY/CARTOGRAPHY: Kenya Coastline, Formosa Bay, Tana River, Sipi Channel. (Dark) METEOROLOGY: Towering cumulus.
1884	104	10/18	Hot-Wet	164:02	58°	01°07'S	41°47'E	1:3,333,330		M-5	88	38	GEOGRAPHY/CARTOGRAPHY: Somali, Kenya Coastline, South of Chisimaio. (Dark) METEOROLOGY: Small cumulus, towering cumulus. OCEANOGRAPHY: Coastline and beaches.
1885	10/18											55	METEOROLOGY: Cirrus.
1886	10/18											50	GEOGRAPHY/CARTOGRAPHY: Coast of N.W. Africa. METEOROLOGY: Small cumulus, cirrus.
1887	105	10/18	Hot-Wet	165:33	44°	12°06'S	34°46'E	1:8,333,330		M-5		68	GEOGRAPHY/CARTOGRAPHY: Lake Nyasa, Malawi, Mozambique. (Dark) GEOLOGY/HYDROLOGY: Rift zone lake with boundary fractures and lying within the complex Vvya mountains. METEOROLOGY: Cumulus. FORESTRY: Intermittent shrubform and savanna grassland, smoke apparent.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	SDNO7025	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1888	105	10/18	Spring	165:36	15:45	32°	20°08'S	45°50'E	1:6,111,110		P-6		50	GEOGRAPHY/CARTOGRAPHY: Madagascar, central part of island, Morendana, Tannana River. (Dark) GEOLOGY/HYDROLOGY: Coastal plain and plateau region with perennial drainage. METEOROLOGY: Cumulus FORESTRY: Intermittent shrubform and savanna OCEANOGRAPHY: Coastline visible.
1889		10/18												Terminator. (Dark)
1890														Blank.
1891	105	10/18	Fall										93	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. METEOROLOGY: Hurricane Gladys.
1892	105	10/18	Fall										100	GEOGRAPHY/CARTOGRAPHY: Gulf of Mexico. METEOROLOGY: Hurricane Gladys.
1893	106	10/18	Fall	166:38	08:20	32°	28°13'N	80°13'W	1:2,750,000		H-25		47	GEOGRAPHY/CARTOGRAPHY: KSC Florida, regional transportation network. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Towering cumulus.
1894	106	10/18	Fall	168:13	08:27	48°	21°43'N	81°57'W	1:5,000,000		J-26		56	GEOGRAPHY/CARTOGRAPHY: Cuba, Bay of Pigs, Ensenada de Boca. (Dark) AGRICULTURE: Scattered cultivation. GEOLOGY/HYDROLOGY: Coastal plain region with sedimentation buildup and distinct shelf variation off shore. METEOROLOGY: Cumulus, alto-cumulus, cirrus. FORESTRY: Intermittent dense tropical hardwood forests. OCEANOGRAPHY: Depth changes.
1895	107	10/18	Fall	168:13	10:04	49°	23°00'N	78°00'W*					59	METEOROLOGY: Alto-cumulus, strato-cumulus. (Normal) OCEANOGRAPHY: Shelf variation.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS %	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1896	107	10/18	Fall	168:15	10:29	54°	21°33'N	72°14'W	1:1,750,000		J-27		42	GEOGRAPHY/CARTOGRAPHY: Caico Islands, Great Abaco Islands, transportation network. (Normal) GEOLOGY/HYDROLOGY: Quaternary marine and coastal deposits. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Depth differences.
1897	107	10/18	Fall	168:15	10:32	54°	21°53'N	71°40'W	1:1,750,000		J-27		70	GEOGRAPHY/CARTOGRAPHY: Caico Islands, Great Abaco Islands, transportation network. (Normal) GEOLOGY/HYDROLOGY: Quaternary marine and coastal deposits. FORESTRY: Dense tropical hardwood. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Depth differences.
1898	107	10/18	Fall	168:16	10:45	59°	18°08'N	68°26'W	1:2,439,00		J-27		38	GEOGRAPHY/CARTOGRAPHY: Dominican Republic, Southwest end of island. (Dark) GEOLOGY/HYDROLOGY: Quaternary marine and coastal deposits. METEOROLOGY: Cumulus, thick cirrus. FORESTRY: Dense tropical hardwood in southeastern corner of island. OCEANOGRAPHY: Shallow waters along the coast.
1899	115	10/19	Hot-Wet	182:07	14:12	54°	13°13'S	135°39'E	1:4,444,440		M-14		34	GEOGRAPHY/CARTOGRAPHY: Australia, Northern Range, Bickerton Island, Blue Mud Bay. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region with a shoreline of submergence. METEOROLOGY: Cumulus, cirrus. FORESTRY: Dense forest stands along coast becoming intermittent inland. OCEANOGRAPHY: Coastline and shallows.
1900	115	10/19	Hot-Wet	182:08	14:37	48°	13°02'S	141°26'E	1:4,230,800		M-14		8	GEOGRAPHY/CARTOGRAPHY: Australia, West Coast of Cape York, Coral Sea. (Dark) AGRICULTURE: Possible cultivation pattern. GEOLOGY/HYDROLOGY: Coastal plain region bordered by swamp areas. FORESTRY: Intermittent stands ranging from semidense to dense, smoke plums.

FRAME NUMBER	1988 DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
1901	115 10/19 1968	Hot-Wet	182:09	14:43	47°	13°09'S	143°26'E	1:4,500,000		N-14		30	GEOGRAPHY/CARTOGRAPHY: Australia, west coast of Cape York, Coral Sea, Campbell Point, Great Barrier Reef. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region with bordering swamps and off shore coral reefs. FORESTRY: Intermittent dense forest and scattered shrubform, open grasslands along major drain. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Ocean depth differences.
1902	115 10/19	Hot-Wet	182:09	14:43	45°	14°34'S	144°45'E	1:5,000,000		N-14		24	GEOGRAPHY/CARTOGRAPHY: Australia, Cape Melville Princess Charlotte Bay. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region with coastal swamp, shoreline of submergence, and off shore coral reefs. FORESTRY: Intermittent forests with scattered shrubform and grass, several fires. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Reefs
1903	116 10/19	Spring	183:44	15:56	29°	26°30'S	137°00'E			Q-14		43	GEOGRAPHY/CARTOGRAPHY: South Australia, Lake Eyre Basin. (Dark) GEOLOGY/HYDROLOGY: Low interior plains with numerous dry lakes and alkali deposits. FORESTRY: Predominantly desert shrubform and grass. METEOROLOGY: Cumulus, alto-cumulus.
1904	116 10/19			17:00	15°	24°30'S	152°00'E					25	METEOROLOGY: Cumulus, cirrus.
1905	117 10/19	Fall	184:50	10:07	49°	22°24'N	32°56'E			J-5			GEOGRAPHY/CARTOGRAPHY: Nile River to Red Sea. (Dark) GEOLOGY/HYDROLOGY: Alluvial plain, plateau, intermittent dendritic drainage on the plateau. FORESTRY: Predominantly scattered desert shrubform, semi-dense vegetation along banks of Nile.
1906	117 10/19	Fall	184:50	10:09	51°	23°47'N	34°16'E			J-5		00	GEOGRAPHY/CARTOGRAPHY: Nile River to Red Sea. (Dark) GEOLOGY/HYDROLOGY: Alluvial plain, plateau, intermittent dendritic drainage on the plateau. FORESTRY: Scattered desert shrubform with semi-dense vegetation along Nile.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1907	117	10/19	Spring	185:13	15:52	30°	24°31'S	113°11'E	1:5,770,000		Q-12		25	GEOGRAPHY/CARTOGRAPHY: Shark Bay, Western Australia. (Normal) GEOLOGY/HYDROLOGY: Coastal plain, hills in the interior, intermittent stream, dendritic drainage. FORESTRY: Primarily shrubform with grass. METEOROLOGY: Cumulus. OCEANOGRAPHY: Depth differences along the coastline.
1908	117	10/19	Spring	185:16	15:52	30°	21°45'S	113°49'E	1:15,200,000		P-12		22	GEOGRAPHY/CARTOGRAPHY: Emu Gulf, Western Australia. (Dark) GEOLOGY/HYDROLOGY: Coastal plain with intermittent consequent drainage pattern. FORESTRY: Scattered shrubform changing to dense shrub. METEOROLOGY: Small cumulus.
1909	118	10/19	Spring	186:51	15:50	09°	25°35'S	113°38'E	1:7,045,000		Q-12		32	GEOGRAPHY/CARTOGRAPHY: Shark Bay, Western Australia. (Dark) GEOLOGY/HYDROLOGY: Coastal plain region containing low hills and intermittent consequent drainage. FORESTRY: Grass and scattered shrubform changing to semi-dense forest lands to the south. METEOROLOGY: Cumulus. OCEANOGRAPHY: Coastal shallows.
1910	118	10/19	Spring	186:51	15:56	08°	27°27'S	114°15'E	1:7,333,330		Q-12		20	GEOGRAPHY/CARTOGRAPHY: Shark Bay, Western Australia. (Dark) AGRICULTURE: Extensive field patterns to south. GEOLOGY/HYDROLOGY: Coastal plain region containing low hills and intermittent consequent drainage. FORESTRY: Grass and scattered shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Coastal shallows.
1911	120	10/19	Hot-Wet	189:38	13:31	64°	10°04'S	12°41'E	1:3,750,000		M-3		63	GEOGRAPHY/CARTOGRAPHY: Angola, coast at Luanda. (Normal) GEOLOGY/HYDROLOGY: Plateau, narrow coastal plain. FORESTRY: Intermittent tall savanna grass. METEOROLOGY: Cumulus, alto-cumulus.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
	1968												
1912	10/19	Spring	189:40	13:33	48°	17°45'S	27°11'E	1:6,680,000		P-4		38	GEOGRAPHY/CARTOGRAPHY: Zambia, Rhodesia, Lake Kariba. (Normal) GEOLOGY/HYDROLOGY: Volcanic highlands, plateau. FORESTRY: Intermittent forest and savanna grassland. METEOROLOGY: Cumulus.
1913	10/19	Spring	189:42	15:05	40°	19°32'S	34°54'E	1:4,285,700		P-5		20	GEOGRAPHY/CARTOGRAPHY: Mozambique, coast of Paira. (Dark) GEOLOGY/HYDROLOGY: Coastal plain, plateau in the interior. FORESTRY: Mangrove swamps, intermittent rain forests and grasslands, several smoke plumes. METEOROLOGY: Cumulus. OCEANOGRAPHY: Ocean depth variations or sediment.
1914	10/19	Spring	189:42	15:05	39°	18°55'S	36°07'E	1:4,285,700		P-5		16	GEOGRAPHY/CARTOGRAPHY: Mozambique, coast at mouth of Zambezi River. (Dark) GEOLOGY/HYDROLOGY: Delta, coastal plain and plateau. FORESTRY: Mangrove swamps, intermittent rain forests and savanna grasslands, numerous fires. METEOROLOGY: Cumulus. OCEANOGRAPHY: Ocean depth variations or sediments.
1915	10/19											00	Underexposed.
1916	10/19	Fall	190:45	07:42	19°	31°56'N	91°45'W			H-24		00	GEOGRAPHY/CARTOGRAPHY: Alexandria, Louisiana; Jackson, Mississippi; transportation network. (Dark) AGRICULTURE: Extensive cultivation. GEOLOGY/HYDROLOGY: Flood plain, meandering Mississippi River. FORESTRY: Pine-hardwood forests and scattered bottom land hardwoods in river plain.
1917	10/19	Fall	190:45	07:47	20°	30°27'N	90°14'W	1:3,208,330		H-24		2	GEOGRAPHY/CARTOGRAPHY: New Orleans, Louisiana; regional transportation network. (Dark) AGRICULTURE: Extensive cultivation pattern. GEOLOGY/HYDROLOGY: Flood plain, Mississippi River. FORESTRY: Intermittent coastal marsh and mixed forest stands.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1918	120	10/19	Fall	190:45	07:58	22°	31°06'N	87°03'W	1:3,280,000		H-24		00	GEOGRAPHY/CARTOGRAPHY: Mobile, Alabama; regional transportation network. (Dark) AGRICULTURE: Scattered, intense cultivation. GEOLOGY/HYDROLOGY: Coastal plain. FORESTRY: Intermittent coastal marsh vegetation with mixed pine-hardwood forests. OCEANOGRAPHY: Sediment flows into Gulf from Bay.
1919	120	10/19	Fall										100	METEOROLOGY: Hurricane Gladys, Gulf of Mexico.
1920	122	10/19	Hot-Wet	192:37	13:24	66°	05°30'S	35°10'W			M-28		52	GEOGRAPHY/CARTOGRAPHY: Brazil, Natal, Cabo de Sao Roque. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. FORESTRY: Intermittent dense tropical forests. METEOROLOGY: Cumulus.
1921	122	10/19	Spring	192:51	17:18	10°	30°00'S	21°00'E*	1:9,666,700		Q-4		14	GEOGRAPHY/CARTOGRAPHY: South Africa, Southwest Africa, Orange River. (Normal) GEOLOGY/HYDROLOGY: Narrow coastal plain, complex mountains, complex plateau. METEOROLOGY: Cirrus.
1922	122	10/19	Spring	192:51	17:14	11°	32°00'S	20°00'E*	1:5,000,000		R-4		50	GEOGRAPHY/CARTOGRAPHY: South Africa, St. Helen Bay, Cape Columbine, Capetown. (Dark) GEOLOGY/HYDROLOGY: Folded mountains and complex plateau. FORESTRY: Low shrubform, grassland. METEOROLOGY: Cumulus, cirrus.
1923	123	10/19		194:07	12:58	72°	02°00'S	63°00'W*			M-28		98	METEOROLOGY: Cumulus, cirrus. (Normal)
1924	123	10/19	Hot-Wet	194:14	14:45	48°	13°00'S	38°00'W*	1:5,500,000		P-28 M-28		29	GEOGRAPHY/CARTOGRAPHY: Brazil, Bahia State, Salvador. (Dark) GEOLOGY/HYDROLOGY: Coastal plain, complex plateau. FORESTRY: Dense tropical forest. METEOROLOGY: Cumulus, cirrus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS %	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1925	123	10/19	Hot-Wet	194:14	14:45	48°	15°30'S	38°00'W	1:5,550,000	P-28			24	GEOGRAPHY/CARTOGRAPHY: Brazil, Bahia State, mouth of Jequitinhonha. GEOLOGY/HYDROLOGY: Coastal plain with perennial drainage. Dense tropical forests. FORESTRY: Dense tropical forests. METEOROLOGY: Cumulus, cirrus.
1926	124	10/19	Spring	195:42	14:13	54°	19°00'S	68°00'W					88	GEOGRAPHY/CARTOGRAPHY: Chile, Argentina, Saler de Uyuni. METEOROLOGY: Alto-cumulus, thick cirrus.
1927	124	10/19	Spring	195:49	15:40	32°	24°57'S	47°23'W	1:5,172,400	Q-28			22	GEOGRAPHY/CARTOGRAPHY: Brazil Coastline, Santos to Florianopolis. (Dark) GEOLOGY/HYDROLOGY: Coastal plain. FORESTRY: Dense forest. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Some sediment deposition.
1928	124	10/19	Hot-Wet	195:43	15:48	32°	24°00'S	46°00'W	1:5,000,000	P-28			25	GEOGRAPHY/CARTOGRAPHY: Brazil coastline, Paruibe, Santos, Ponta de Juatinga. (Dark) AGRICULTURE: Possible field patterns. GEOLOGY/HYDROLOGY: Complex hills, coastal plain. FORESTRY: Dense forests along coast becoming increasingly intermittent inland. OCEANOGRAPHY: Depth differences.
1929	127	10/20		201:23		35°							100	METEOROLOGY: Hurricane Gloria.
1930	127	10/20		201:23									97	METEOROLOGY: Hurricane Gloria
1931	129	10/20		204:47	14:56	42°	20°21'S	166°15'E	1:4,307,700	P-16		150	28	GEOGRAPHY/CARTOGRAPHY: New Caledonia, Ile Lifou. (Dark) GEOLOGY/HYDROLOGY: Complex mountains. FORESTRY: Dense forest. METEOROLOGY: Cumulus. OCEANOGRAPHY: Reefs, sun-glint.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	QNC			
		1968												
1932	133	10/20	Cool-Dry	210:31	10:34	62°	13°20'N	14°43'E	1:3,700,000		K-3		20	GEOGRAPHY/CARTOGRAPHY: Lake Chad, Africa. (Dark) GEOLOGY/HYDROLOGY: Interior plain region forming a drainage basin with elevated dunes on the north side. FORESTRY: Savanna grassland, with scattered shrubform. METEOROLOGY: Cirrus.
1933	134	10/20	Fall	213:19	06:46	39°	Above Horizon				H-25	120		GEOGRAPHY/CARTOGRAPHY: Florida. (Dark) OCEANOGRAPHY: Sun-glint.
1934	134	10/20	Fall	213:19	07:05	11°	27°30'N	81°30'W			H-25	120	18	GEOGRAPHY/CARTOGRAPHY: Florida. (Dark) METEOROLOGY: Clouds, the horizon. OCEANOGRAPHY: Sun-glint.
1935	134	10/20	Fall	213:20	07:02	11°	28°25'N	79°49'W			H-25	118	30	GEOGRAPHY/CARTOGRAPHY: Florida, KSC. (Dark) METEOROLOGY: Cumulus, cirrus.
1936		10/20	Fall						1:7,000,000		J-26		34	GEOGRAPHY/CARTOGRAPHY: Cuba, Havana. (Dark) GEOLOGY/HYDROLOGY: Low plain. FORESTRY: Intermittent forest lands. METEOROLOGY: Cumulus, cirrus.
1937	136	10/20	Fall	216:22	07:45	20°	30°00'N	115°00'W			H-22	112	65	GEOGRAPHY/CARTOGRAPHY: Gulf of California, Isle, Tiburon and Isla Angel de la Guarda. (Dark) METEOROLOGY: Strato-cumulus.
1938	136	10/20	Fall	216:24	08:11	26°	25°30'N	109°00'W			H-22 H-23 J-24	106	2	GEOGRAPHY/CARTOGRAPHY: Southern end of the Gulf of California and Southwestern Mexico coast. (Dark) GEOLOGY/HYDROLOGY: Coastal plain showing off shore build-up on a shoreline of submergence. OCEANOGRAPHY: Sun-glint, good land water contrast.
1939	137	10/20	Spring	216:44	13:23	67°	10°00'S	36°00'W				112	12	GEOGRAPHY/CARTOGRAPHY: Brazil, coast near Aracaju. (Normal) GEOLOGY/HYDROLOGY: Coastal plain. METEOROLOGY: Cumulus. OCEANOGRAPHY: Coastal shallows.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1940	137	10/20	Spring	217:00	17:12	11°	28°00'S	16°53'E	1:5,500,000		Q-4	180	40	GEOGRAPHY/CARTOGRAPHY: South Africa, Orange River. (Dark) GEOLOGY/HYDROLOGY: Complex plateau. METEOROLOGY: Cumulus.
1941	140	10/20	Spring	221:29	17:00	15°	29°00'S	53°00'W			Q-28	172	10	GEOGRAPHY/CARTOGRAPHY: Porto Alegre, Brazil, South Atlantic Ocean. (Normal) GEOLOGY/HYDROLOGY: Coastal plain. FORESTRY: Inconstant forest and grassland. METEOROLOGY: Cumulus.
1942	140	10/20	Spring	221:29	17:13	12°	31°00'S	50°30'W	1:5,000,000		Q-28	175	8	GEOGRAPHY/CARTOGRAPHY: Porto Alegre, Brazil, South Atlantic Ocean. (Normal) AGRICULTURE: Some cultivation around Lagoa dos Patos. GEOLOGY/HYDROLOGY: Coastal plain, swamp. FORESTRY: Low scrubform. METEOROLOGY: Cumulus, cirrus.
1943	140	10/20	Spring	221:30	17:11	12°	31°48'S	51°50'W	1:5,000,000		Q-28	180	13	GEOGRAPHY/CARTOGRAPHY: Porto Alegre, Brazil, South Atlantic Ocean. (Normal) GEOLOGY/HYDROLOGY: Coastal plain, swamp, sediment flow patterns in lagoon. FORESTRY: Low scrubform. METEOROLOGY: Cumulus, cirrus. OCEANOGRAPHY: Off shore sediment flows.
1979	8	10/12	Fall	11:59	08:46	32°	30°20'N	86°23'E			H-9	125	5	GEOGRAPHY/CARTOGRAPHY: India, Nepal, Tibet, Corakhpur in India; Ganga and Ganges Rivers, Ganges Plains, Himalayas. (Normal) GEOLOGY/HYDROLOGY: Ganges interior alluvial plains and basement complex of the Himalayas. The complex tibet plateau is in the background, perennial rivers form a braided pattern along the plains. FORESTRY: Savanna grass mixed with deciduous forest stands in flood plain, changing to dense evergreen forest at middle elevations and void of vegetation at higher elevations. METEOROLOGY: Alto-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1980	8	10/12	Fall	11:59	08:43	34°	25°52'N	85°20'E			H-9	125	10	<u>GEOGRAPHY/CARTOGRAPHY</u>: India, Nepal, Tibet, Pakistan, Patna City, Java in India: Chuchra, Canda, Son and Ganges River: Ganges Plains and Himalayas. (Normal) <u>AGRICULTURE</u>: Field patterns recognizable in flood plain. <u>GEOLOGY/HYDROLOGY</u>: Ganges interior alluvial plain and basement complex of the Himalayas. The Ganges River is a perennial braided river. <u>FORESTRY</u>: Savanna grass, semi-dense forests with occasional dense stands in flood plain, changing to dense evergreen stands at higher elevation. <u>METEOROLOGY</u>: Small cumulus, alto-cumulus.
1981	8	10/12	Fall	12:00	08:55	34°	27°49'N	88°01'E			H-9	125		<u>GEOGRAPHY/CARTOGRAPHY</u>: Nepal, India, China, Britain, Himalayas and Tibet Plateau. (Normal) <u>GEOLOGY/HYDROLOGY</u>: Complex of Himalayas consisting of igneous and sedimentary rocks, Tibet plateau is highly dissected and forms a complex plateau with alluvial deposits. <u>FORESTRY</u>: Dense forest stands along plain and highland contact and up to snow line. Vegetation sparse or lacking in plateau. <u>METEOROLOGY</u>: Alto-cumulus, strato-cumulus.
1982	8		Fall	12:00	09:03	35°	28°08'N	90°11'E			H-10	126		<u>GEOGRAPHY/HYDROLOGY</u>: Britain, China, Himalayas and Tibet Plateau. (Normal) <u>GEOLOGY/HYDROLOGY</u>: Complex mountains of the Himalayas and Tibet Plateau: complex. <u>FORESTRY</u>: Dense to semi-dense forest stands below snow line, vegetation sparse or lacking in plateau. <u>METEOROLOGY</u>: Cumulus, alto-cumulus.
1983	8		Fall	12:10	11:54	49°	32°12'N	130°15'N	1:4,000,000		H-13	125	23	<u>GEOGRAPHY/CARTOGRAPHY</u>: Japan: Kyushu, Kagoshima; Kagoshima Bay, East China Sea. (Normal) <u>AGRICULTURE</u>: Sparse, irregular cultivation patterns. <u>GEOLOGY/HYDROLOGY</u>: Complex hills and submerged coast line. <u>FORESTRY</u>: Dense forest stands on slopes, separated by drainage system. <u>METEOROLOGY</u>: Cirrus, alto-cumulus, small cumulus. <u>OCEANOGRAPHY</u>: Off shore sedimentation.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1984	8		Fall	12:10	11:55	49°	31°25'N	130°41'E	1:13,452,000		H-13	125	40	GEOGRAPHY/CARTOGRAPHY: Japan: Kyushu, Kagoshima, Miyakonojima, Kagoshima Bay, East China Sea. (Normal) GEOLOGY/HYDROLOGY: Complex hills and submerged coast line. FORESTRY: Dense forest stands separated by drainage system. METEOROLOGY: Cirrus, alto-cumulus, small cumulus. OCEANOGRAPHY: Off shore sedimentation and currents are sparse.
1985	8	10/12	Fall	12:10	11:58	49°	31°01'N	131°05'E				125	72	GEOGRAPHY/CARTOGRAPHY: Japan: Kyushu: Kagoshima, Kagoshima Bay. (Normal) GEOLOGY/HYDROLOGY: Complex hills and submerged coast line. FORESTRY: Dense forest stands separated by drainage network. METEOROLOGY: Small cumulus, cumulus-nimbus.
1986	8	10/12											30	METEOROLOGY: Strato-cumulus. (Normal)
1987	9	10/12	Cool-Dry	13:22	07:18	20°	12°40'N	43°25'E*				129	20	GEOGRAPHY/CARTOGRAPHY: Ethiopia, Yemen, Somaliland, Saudi Arabia, Red Sea, Gulf of Aden. (Dark) METEOROLOGY: Small cumulus.
1988	9	10/12	Fall	13:22	07:13	18°	16°20'N	42°10'E*				129	0	GEOGRAPHY/CARTOGRAPHY: Yemen, Saudi Arabia: Red Sea, Farasan Islands. (Normal)
1989	9	10/12	Fall	13:23	07:21	19°	18°00'N	44°00'E*				130	0	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia: Empty Quarter, Jebel Thawq. (Normal) GEOLOGY/HYDROLOGY: Egr Plains region of longitudinal soil dunes.
1990	9	10/12	Fall	13:25	08:28	27°	30°00'N	60°00'E*				128	30	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Persian Gulf. (Normal) GEOLOGY/HYDROLOGY: Erg plains and eroding coast. METEOROLOGY: Small cumulus, alto-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1991	9	10/12	Fall	13:33	10:04	42°	30°30'N	82°00'E*				126		GEOGRAPHY/CARTOGRAPHY: India, Nepal, Tibet, Himalayas. (Dark) GEOLOGY/HYDROLOGY: Basement complex mountains of the Himalayas, perennial lakes from snow deposits are prevalent.
1992	9	10/12	Fall	13:33	10:04	42°	30°45'N	81°50'E			H-9 C-7	126	5	GEOGRAPHY/CARTOGRAPHY: Tibet: Tibet Plateau, Himalayas. (Dark) GEOLOGY/HYDROLOGY: Complex sedimentary Tibet Plateau and basement complex mountains of the Himalayas and perennial lakes.
1993	9	10/12	Fall	13:34	10:24	45°	30°43'N	86°45'E	1:4,000,000		H-9	125	35	GEOGRAPHY/CARTOGRAPHY: Tibet, Tibet Plateau, Terinam Tsho Lake. (Dark) GEOLOGY/HYDROLOGY: Perennial lakes and complex plateau of Tibet. METEOROLOGY: Cirrus, small cumulus, alto-cumulus.
1994	9	10/12												Spacecraft window
1995	9	10/12												Blurred photo.
1996	9	10/12	Cool-Dry	13:56	06:09	21°	11°00'N	167°30'E*				138	20	GEOGRAPHY/CARTOGRAPHY: Marshall Islands, Ailinginae and Rongelap Atolls. METEOROLOGY: Small cumulus, towering cumulus. OCEANOGRAPHY: Currents are parallel to Atolls.
1997	9	10/12	Cool-Dry	13:56	06:27	18°	7°00'N	172°00'E*				138	15	GEOGRAPHY/CARTOGRAPHY: Marshall Islands, Wajuro, Arno, Rili Atolls. (Normal) METEOROLOGY: Small cumulus, towering cumulus. OCEANOGRAPHY: Currents are parallel to Atolls.
1998	10	10/12	Fall	14:53	07:28	21°	17°30'N	23°00'E			J-4	132	0	GEOGRAPHY/CARTOGRAPHY: Chad, Sudan, Libya, Emedei Plateau, Mourdi Depression. (Normal) GEOLOGY/HYDROLOGY: Elevated sedimentary plateau surrounded by an interior erg plains region and highly dissected intermittent stream beds within the plateau.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
1999	10	10/12	Fall	14:55	08:08	28°	22°15'N	32°00'E			J-S	130		GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Nile River, Lake Nasser, Wadi Halfa, Nubian Desert. (Normal) GEOLOGY/HYDROLOGY: Erg plain with a dissected sedimentary plains region adjacent to the Nile River. FORESTRY: Scattered desert shrubform.
2000	10	10/12	Fall	14:56	08:25	27°	28°25'N	34°15'E			H-5	129	0	GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Saudi Arabia, Red Sea, Gulf of Suez, Gulf of Aqaba, Mediterranean Sea. (Normal) GEOLOGY/HYDROLOGY: A region of basement complex mountainous areas adjacent to the coastal erg areas of the rift zone, numerous fault structures can be delineated.
2001	10	10/12	Fall	14:57	08:36	32°	24°30'N	37°00'E*			J-6	128	5	GEOGRAPHY/CARTOGRAPHY: Saudi Arabia, Red Sea, Ras Abu Wadi. (Normal) GEOLOGY/HYDROLOGY: Coastal plain dune deposits and basement complex highly fractured hills and mountains. FORESTRY: Low scattered shrubform. METEOROLOGY: Small cumulus.
2002	10	10/12	Fall	15:02	09:27	39°	29°00'N	50°30'E*			H-6	126		GEOGRAPHY/CARTOGRAPHY: Iran, Persian Gulf Coast at Bushire. (Normal) GEOLOGY/HYDROLOGY: Rugged hills of basement complex are adjacent to the coast. OCEANOGRAPHY: Coastal shallows, possible current patterns.
2003	11	10/12	Fall	16:33	09:48	41°	31°10'N	33°10'E*			H-5	126		GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Nile Delta, Suez Canal. (Dark) GEOLOGY/HYDROLOGY: Deltaic plain of the Nile and adjacent coast line of the Mediterranean. METEOROLOGY: Small cumulus, towering cumulus.
2004	11	10/12												METEOROLOGY: Strato-cumulus. (Dark)
2005	13	10/12		19:34	11:21	43°	30°00'N	11°00'E*				125		GEOGRAPHY/CARTOGRAPHY: Morocco. METEOROLOGY: Small cumulus, alto-cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
2006	13	10/11	Fall	19:41	12:46	47°	31°00'N	30°30'E			H-5	126		GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Nile Delta. (Dark) AGRICULTURE: Extremely heavy cultivation in Nile delta. GEOLOGY/HYDROLOGY: Coastal plain deposits from erg area. METEOROLOGY: Cumulus, alto-cumulus.
2007	13	10/11	Fall	19:42	12:48	48°	32°00'N	33°00'E			G-3,4 H-5	126	25	GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Jordan, Mediterranean Sea and Suez Canal. (Dark) AGRICULTURE: Extremely heavy cultivation in delta. GEOLOGY/HYDROLOGY: Deltaic coastal plain and erg desert coastal region. METEOROLOGY: Cumulus.
2008	13	10/11	Fall	19:42	12:46	47°	30°08'N	32°38'E	1:4,444,444		H-5	126	2	GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Sinai Desert, Suez Canal, Gulf of Suez, Port Said, Ismailiya. (Dark) AGRICULTURE: Heavy cultivation in delta. GEOLOGY/HYDROLOGY: Dissected sedimentary hills and erg plains region. Perennial and intermittent drainage on the coasts. METEOROLOGY: Small cumulus.
2009	13	10/11	Fall	19:42	12:46	46°	31°30'N	32°20'E			H-5	127	15	GEOGRAPHY/CARTOGRAPHY: United Arab Republic, Israel, Sinai Desert, Suez Canal, Great Bitter Lake. (Dark) AGRICULTURE: Heavy cultivation in delta. GEOLOGY/HYDROLOGY: Coastal plain dune deposits. METEOROLOGY: Cumulus.
2010	13	10/11	Fall	19:43	12:57	45°	31°15'N	35°15'E			H-5	127	12	GEOGRAPHY/CARTOGRAPHY: Israel, Jordan, Syria, Lebanon, Dead Sea. (Dark) GEOLOGY/HYDROLOGY: Area of sedimentary hills and basement complex mountain structures grading into an alluvial plain. Dead Sea forms a watershed for Israel and Jordan. METEOROLOGY: Small cumulus.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
	1968												
2011	13 10/12	Fall	19:43	12:56	47°	29°37'N	35°02'E	1:3,545,454		H-5	127	5	GEOGRAPHY/CARTOGRAPHY: Israel, Jordan, Saudi Arabia, Gulf of Aqaba. (Normal) GEOLOGY/METEOROLOGY: Sedimentary and basement complex hill and mountains, with alluvial deposits interspersed. METEOROLOGY: Cumulus.
2012	14 10/12	Fall	21:05	11:08	52°	28°00'N	15°00'W*			H-1	125	20	GEOGRAPHY/CARTOGRAPHY: Canary Islands, Morocco, Atlantic Ocean. (Dark) GEOLOGY/METEOROLOGY: Volcanic, sedimentary and complex hills and the western Sahara Desert erg area of Morocco. FORESTRY: Dense intermittent forest stands on islands. METEOROLOGY: Cumulus, alto-cumulus.
2013	14 10/12	Fall	21:06	11:27	51°	30°00'N	10°30'W*			H-1	125	40	GEOGRAPHY/CARTOGRAPHY: Morocco, Pas Rhar, Anti-Atlas Mountains. (Dark) GEOLOGY/METEOROLOGY: Highly folded sedimentary mountain complex with alluvial deposits in the lower regions. FORESTRY: Scattered desert shrubform. METEOROLOGY: Strato-cumulus, small cumulus.
2014	10/12	Fall										95	METEOROLOGY: Strato-cumulus, small cumulus. (Dark)
2015	15 10/12	Fall	23:56	08:29	31°	24°30'N	97°30'W*				127	35	GEOGRAPHY/CARTOGRAPHY: Mexico, Tamaulipas, Laguna Madre Southern end. (Dark) GEOLOGY/METEOROLOGY: Coastal plain deposits along a shoreline of emergence, off shore sand bar. METEOROLOGY: Cumulus, cumulus-nimbus.
2016	15 10/12	Fall	24:00	09:37	41°	28°00'N	82°40'W			H-25	126	55	GEOGRAPHY/CARTOGRAPHY: Florida, Tampa, St. Petersburg, Gulf of Mexico. (Dark) METEOROLOGY: Small cumulus, towering cumulus.
2017	15 10/12	Fall	24:01	09:42	42°	28°20'N	80°30'W			H-25	126	85	GEOGRAPHY/CARTOGRAPHY: Florida, Ponce de Leon Inlet, East Coast, Cape Kennedy. (Dark) METEOROLOGY: Small cumulus, towering cumulus.

FRAME NUMBER	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
						LATITUDE	LONGITUDE		WAC	ONC			
	1968												
2018	15	Fall	24:01	09:40	41°	29°00'N	81°00'W			H-25	126	60	GEOGRAPHY/CARTOGRAPHY: Florida, Flagler Beach to Melbourne, Cape Kennedy. (Dark) METEOROLOGY: Small cumulus, towering cumulus.
2019	17	Fall	27:02	10:09	40°	34°21'N	120°22'W			G-18	125	45	GEOGRAPHY/CARTOGRAPHY: California, Santa Cruz, San Miguel, and Santa Rosa Island, Santa Barbara, Santa Ynez Mountains, Pacific Ocean. (Normal) GEOLOGY/HYDROLOGY: Alluvial coastal plain and complex mountain structure. FORESTRY: Scattered desert shrubform with intermittent forests at higher elevations. METEOROLOGY: Cirrus underlined by cumulus.
2020	17	Fall	27:02	10:09	41°	34°08'N	119°09'W			G-18	125	35	GEOGRAPHY/CARTOGRAPHY: California, Los Angeles, Oceanside, Point Arguello, Mojave Desert, Santa Ynez and San Rafael Mts., Pacific Ocean. (Normal) AGRICULTURE: Extensive cultivation patterns, possible irrigation. GEOLOGY/HYDROLOGY: Pacific sedimentary and basement complex mountains. Mojave Desert plain and San Joaquin valley bordered by folded mountain complexes. FORESTRY: Desert shrubform with intermittent forest stands at higher elevations. METEOROLOGY: Strato-cumulus, alto-cumulus.
2021	17	Fall	27:03	10:13	42°	32°58'N	118°25'W			G-18 H-22	125	45	GEOGRAPHY/CARTOGRAPHY: California, Santa Barbara, Los Angeles, Oceanside, Pacific Mountain Ranges, Mojave Desert, Pacific Ocean. (Normal) AGRICULTURE: Isolated areas of cultivation. GEOLOGY/HYDROLOGY: Folded coastal range mountains and Mojave Desert plain with large dry salt lake deposits. FORESTRY: Desert shrubform with intermittent forest stands at higher elevations. METEOROLOGY: Cumulus, strato-cumulus.
2022	17	Fall	27:03	10:13	42°	34°57'N	117°41'W			G-18	125	30	GEOGRAPHY/CARTOGRAPHY: California, Los Angeles to Oceanside, San Gabriel Mountains, Mojave Desert, San Joaquin Valley. (Normal) AGRICULTURE: Extensive irrigated field patterns. GEOLOGY/HYDROLOGY: Complex folded Pacific Mountain, Basin and range province and numerous dry salt lake regions. The sedimentary Pacific range contains both perennial and intermittent streams.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS %	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												FORESTRY: Desert shrubform with intermittent forest stands at higher elevations. METEOROLOGY: Cirrus, strato-cumulus.
2023	17	10/12	Fall	27:03	10:24	43°	33°16'N	115°36'W	1:3,521,700		G-18	125	0	GEOGRAPHY/CARTOGRAPHY: California, Mexico, Baja California, Imperial Valley, Mexicali, Salton Sea, Basin and Range. (Normal) AGRICULTURE: Very extensive, irregular cultivation, field patterns easily recognizable. GEOLOGY/HYDROLOGY: Complex mountains, volcanic and alluvial deposits in the basin and range perennial Colorado River, intermittent streams and dry salt lake deposits. FORESTRY: Scattered desert shrubform. METEOROLOGY: Small isolated cumulus.
2024	17	10/12	Fall	27:03	10:34	45°	31°20'N	113°00'W			H-22	125	0	GEOGRAPHY/CARTOGRAPHY: Mexico, Arizona, Gulf of California, Sonora Desert, Tucson, Wilcox, Dry Lake, De Aquar Bay. (Normal) AGRICULTURE: Extensive cultivation, field patterns along Rio de la Concepcion. GEOLOGY/HYDROLOGY: Basin and range province, volcanic mountains, alluvial plains, pinacates lava field, and lateral dune formations. FORESTRY: Scattered desert shrubform. OCEANOGRAPHY: Distinct currents and off shore sedimentation.
2025	17		Fall	27:04	10:30	45°	31°35'N	113°54'W			G-19 H-22	125	0	GEOGRAPHY/CARTOGRAPHY: Mexico, Arizona, Sonora Desert, Gulf of California, Rio Sonoyta, Rio de la Concepcion. (Normal) AGRICULTURE: Extensive cultivation along Rio de la Concepcion. GEOLOGY/HYDROLOGY: Basin and range province, pinacates lava field, alluvial and dunal deposits, intermittent drainage is prevalent and sedimentation outflow from the Colorado River. FORESTRY: Scattered desert shrubform. OCEANOGRAPHY: Currents and off shore sedimentation.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	%CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
2026	17	10/12	Fall	27:04	10:34	45°	31°20'N	113°15'W	1:3,285,000		H-22	125	0	GEOGRAPHY/CARTOGRAPHY: Mexico, Arizona, Sonora Desert, Gulf of California, Rio de la Concepcion. (Normal) AGRICULTURE: Extensive cultivation along Rio de la Concepcion. GEOLOGY/HYDROLOGY: Basin and range province, volcanic and dune deposits. Deltaic plain and intermittent drainages. FORESTRY: Scattered desert shrubform. OCEANOGRAPHY: Sediments in suspension and currents adjacent to coast.
2027	17	10/12	Fall	27:04	10:38	46°	29°20'N	112°00'W	1:5,285,000		H-22	125	5	GEOGRAPHY/CARTOGRAPHY: Mexico, Baja California, Isla Tiburón, Isla Angel de la Guarda, Guaymas, Hermosillo. (Normal) AGRICULTURE: Extensive cultivation in Sonora River Delta. GEOLOGY/HYDROLOGY: Basement complex hills and mountains, Sonora plains and complex Sierra Madre Occidental. FORESTRY: Scattered desert shrubform. METEOROLOGY: Small cumulus. OCEANOGRAPHY: Sedimentation and currents along the coast. Sun-glint exposing surface activities.
2028	17	10/12	Fall	27:05	10:58	47°	31°00'N	107°40'W			H-23	125	5	GEOGRAPHY/CARTOGRAPHY: Mexico, New Mexico, Chihuahua, Laguna Le Guzman, El Paso, Rio Grande. (Normal) AGRICULTURE: Scattered, intense cultivation along Rio Grande and in New Mexico. GEOLOGY/HYDROLOGY: Basin and range terrain, dry salt lake deposits, perennial and intermittent drainage. FORESTRY: Scattered desert shrubform with semi-dense evergreen stands at high elevations. METEOROLOGY: Small cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
2029	17	10/12	Fall	27:06	11:05	47°	32°51'N	105°57'W			G-19	125	3	<u>GEOGRAPHY/CARTOGRAPHY</u>: New Mexico, White Sands, Alamogordo, Sacramento and San Andres Mountains, Pecos River. (Normal) <u>AGRICULTURE</u>: Intense field pattern along Pecos River at Roswell and Artesia New Mexico. <u>GEOLOGY/HYDROLOGY</u>: Complex sedimentary mountains, alluvial plains, alkali basin deposit and intermittent streams. <u>FORESTRY</u>: Scattered desert shrubform with mixed conifer-hardwood forests in Sacramento mountains. <u>METEOROLOGY</u>: Cumulus.
2030	17	10/12	Spring	27:06	11:11	47°	32°05'	104°48'W			G-19	125	3	<u>GEOGRAPHY/CARTOGRAPHY</u>: New Mexico, Texas, Carlsbad, Sacramento Mountains, Salt Flat. (Normal) <u>AGRICULTURE</u>: Intense along Pecos River. <u>GEOLOGY/HYDROLOGY</u>: Elevated alluvial plains, sedimentary mountains and intermittent drainage. <u>FORESTRY</u>: Scattered desert shrubform with mixed conifer-hardwood forests in Sacramento ranges. <u>METEOROLOGY</u>: Cumulus, towering cumulus.
2031	17	10/12	Fall	27:06	11:21	48°						124	30	<u>GEOGRAPHY/CARTOGRAPHY</u>: New Mexico, Texas, Roswell, Lubbock, Llano Estacado. (Normal) <u>AGRICULTURE</u>: Extensive cultivation, large rectangular field pattern. <u>GEOLOGY/HYDROLOGY</u>: Central basin platform, intermittent drainage. <u>FORESTRY</u>: Scattered to dense shrubform. <u>METEOROLOGY</u>: Cirrus, cumulus.
2032	17	10/12	Fall	27:07	11:17	49°	31°15'N	103°05'W			H-23	124	3	<u>GEOGRAPHY/CARTOGRAPHY</u>: New Mexico, Texas, Odessa, Monahans, Fort Stockton, Central Basin, Platform. (Normal) <u>AGRICULTURE</u>: Scattered areas of intense cultivation. <u>GEOLOGY/HYDROLOGY</u>: Sedimentary plains and Edwards Plateau region. Drainage is intermittent throughout. <u>FORESTRY</u>: Scattered low shrubform. <u>METEOROLOGY</u>: Cumulus, towering cumulus.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	% CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
2033	17	10/12	Fall	27:08	11:57	50°	30°04'N	93°45'W			H-24	124	60	<u>GEOGRAPHY/CARTOGRAPHY</u>: Texas, Louisiana, Gulf Coast, Port Arthur, Lake Charles. (Normal) <u>AGRICULTURE</u>: Large areas of cultivation around Lake Charles. <u>GEOLOGY/HYDROLOGY</u>: Coastal plain of sedimentary beds. <u>VEGETATION</u>: Semi-dense to dense pine-hardwood forests. <u>METEOROLOGY</u>: Small cumulus. <u>OCEANOGRAPHY</u>: Sedimentation deposits along coast.
2034	17	10/12	Fall	27:09	12:00	50°	29°59'N	93°15'W	1:4,100,000		H-24	124	45	<u>GEOGRAPHY/CARTOGRAPHY</u>: Texas, Louisiana, Orange, Lake Charles, Opelousas, Coastal Plain, Sabine Pass, Vermillion Bay. (Normal) <u>AGRICULTURE</u>: Extensive large percentage of land under cultivation. <u>FORESTRY</u>: Intermittent stands of mixed pine-hardwood forests. <u>METEOROLOGY</u>: Small cumulus. <u>OCEANOGRAPHY</u>: Sedimentation and current turbidity along the coast.
2035	17	10/12	Fall				30°03'N	93°15'W			H-24			<u>GEOGRAPHY/CARTOGRAPHY</u>: Louisiana, Lake Charles, Grexley, Grand and White Lakes. (Normal) <u>AGRICULTURE</u>: Extensive cultivation. <u>FORESTRY</u>: Intermittent stands of mixed pine-hardwood forests. <u>METEOROLOGY</u>: Small cumulus. <u>OCEANOGRAPHY</u>: Sedimentation along the coast.
2036	17	10/12	Fall	27:09	12:12	50°	30°14'N	89°58'W	1:3,666,000		H-24	124	75	<u>GEOGRAPHY/CARTOGRAPHY</u>: Louisiana, Mississippi, Biloxi, New Orleans, Lake Fortchartrain. (Normal) <u>AGRICULTURE</u>: Extensive cultivation. <u>FORESTRY</u>: Intermittent stands of pine bottom land hardwood forests. Coastal marsh grass. <u>METEOROLOGY</u>: Cumulus, cumulus-nimbus, alto-cumulus. <u>OCEANOGRAPHY</u>: Currents and possible depth anomalies.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS %	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
2037	17	10/12	Fall	27:11	13:44	50°	27°55'N	82°40'W			H-25	124	65	GEOGRAPHY/CARTOGRAPHY: Florida, Tampa, Sarasota, Lakeland, St. Petersburg, Gulf Coast - Coastal Plain region. (Normal) AGRICULTURE: Scattered areas of semi-intense cultivation. FORESTRY: Intermittent stands of pine and bottom land hardwoods, coastal marsh grass. METEOROLOGY: Cumulus, alto-cumulus. OCEANOGRAPHY: Sun-glint and current changes are evident.
2038	17	10/12	Fall	27:12	12:53	48°	28°23'N	80°31'W	1:3,568,000		H-25	125	85	GEOGRAPHY/CARTOGRAPHY: New Smyrna, Palm Beach, Kennedy Space Center, Atlantic Coastal Plain. (Normal) AGRICULTURE: Scattered field patterns. FORESTRY: Intermittent stands of pine, coastal grass, bottom land shrubform. METEOROLOGY: Cumulus. OCEANOGRAPHY: Currents along the coast are evident.
2039	17		Fall	27:12	12:53	48°	28°35'N	80°30'W			H-25	125	85	GEOGRAPHY/CARTOGRAPHY: Florida, Titusville, Fort Pierce, Stuart, Kennedy Space Center, Atlantic Coastal Plain. (Normal) FORESTRY: Intermittent pine and bottom land hardwood low shrubform and coastal grass. METEOROLOGY: Cumulus. OCEANOGRAPHY: Currents are evident.
2040	18	10/12	Fall	27:13	13:05	48°	26°55'N	77°40'W	1:4,000,000		H-25	125	70	GEOGRAPHY/CARTOGRAPHY: Grand Bahama and Great Abaco Islands, Atlantic Ocean and L'Anse aux Laves. (Normal) FORESTRY: Dense stands of broad leaf evergreen. METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Bahama banks differentiation is prevalent, to show depth difference.

FRAME NUMBER	ORBIT	DATE	SEASON	GET	LOCAL SOLAR TIME	SUN ELEV	PRINCIPAL POINT		APPROXIMATE SCALES OF 70MM AT PP	MAP PLOTS		ALTITUDE N.M.	CLOUDS	DESCRIPTION BY DISCIPLINE
							LATITUDE	LONGITUDE		WAC	ONC			
		1968												
2041	18	10/12	Fall	27:13	13:03	48°	26°55'N	77°45'W			H-25	125	80	GEOGRAPHY/CARTOGRAPHY: Grand Bahama and Great Abaco Islands, Window Reflection in the center. (Normal) METEOROLOGY: Cumulus, alto-cumulus, cirrus. OCEANOGRAPHY: Bahama banks differentiation is prevalent for depth differences.
2042		10/12												Light specks
2043		10/12												Hatch window inside the spacecraft.

REFERENCES

The following list of reference materials were used in the evaluation of Apollo 7 imagery. It was noted that in some instances the names of features varied in spelling from one source to another. An effort was made to use the most recent compilation for names.

- Spacecraft Recovery Chart, (ACIC) Apollo 6, 1:5,000,000.
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Sheets 1 and 2, 1:40,000,000.
- Sectional Aeronautical Charts, (ACIC) 1:500,000.
- ONC Charts, (ACIC) 1:1,000,000.
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- Goode's World Atlas - Goode, J.P. and Espenshade, E.B., Rand McNally
Co., 1965.
- Major Forest Types in the United States (USDAFS) 1:5,000,000.
- Apollo 7 Preliminary Report, Photographic Technology Laboratory
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SECTION 5
APOLLO 8
(Reference 5)

APOLLO 8

70 mm PHOTO INDICES

Prepared by

National Aeronautics and Space Administration
Manned Spacecraft Center
Mipping Sciences Laboratory
Houston, Texas 77058

-180-

090350

NR-51- 00208

The photo logs (indices) contained in this report are indices of the 70mm Hasselblad photography taken during the Apollo 8 mission. These indices are arranged by magazine with the frames numbered consecutively within each magazine. Where possible, the approximate selenographic coordinates of the principle point of each photograph has been given. In addition, other supporting data has been furnished. In the case of magazines A and B where it could not be ascertained on which orbit the photograph was acquired, a sun angle for the 3rd orbit was used. When a shutter speed and f stop are not indicated, the best assumption is that the corresponding shutter speed and f stop shown for that particular area on the ATO for December 21, 1968, were used.

The frames as listed in these indices are those plotted on the photo indices charts, 1 of 3 and 3 of 3. No attempt has been made to list by frame the coverage shown on the photo index of the 16mm, 2 of 3.

APOLLO 8 - MAGAZINE A FILM SO-368 SUN ANGLE READ FOR REV 3

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
TL AS8-16-2581		-	-	High Alt. Earth	Near Vert.	-	-	-	-	E. Coast, Fla. Cuba, Bahamas	Good Exp.
TL	2582	-	-	-	-	-	-	-	-	S IV B	Good Exp.
TL	2583	-	-	-	-	-	-	-	-	"	80MM "
TL	2584	-	-	-	-	-	-	-	-	"	"
TL	2585	-	-	-	-	-	-	-	-	"	"
TL	2586	-	-	-	-	-	-	-	-	"	"
TL	2587	-	-	High Alt. Earth	-	-	-	-	-	Africa S. America	"
TL	2588	-	-	"	-	-	-	-	-	"	"
TL	2589	-	-	"	-	-	-	-	-	"	"
TL	2590	-	-	"	-	-	-	-	-	"	"
TL	2591	-	-	-	-	-	-	-	-	S IV B	"
TL	2592	-	-	-	-	-	-	-	-	"	"
TL	2593	-	-	High Alt. Earth	-	-	-	-	-	Earth	"
TL	2594	-	-	"	-	-	-	-	-	"	"
TL	2595	-	-	"	-	-	-	-	-	"	"
TL	2596	-	-	Earth	-	-	-	-	-	"	"
TL	2597	-	-	"	-	-	-	-	-	"	"
TL	2598	-	-	"	-	-	-	-	-	"	"
TL	2599	-	-	"	-	-	-	-	-	"	"
TL	2600	-	-	"	-	-	-	-	-	"	"
TL	2601	-	-	"	-	-	-	-	-	"	"
TL	2602	-	-	"	-	-	-	-	-	"	"
TL	2603	-	-	"	-	-	-	-	-	"	"
TL	2604	-	-	"	-	-	-	-	-	"	"
TL	2605	-	-	"	-	-	-	-	-	"	"
TL	2606	-	-	"	-	-	-	-	-	"	"
TL	2607	-	-	"	-	-	-	-	-	"	"
TL	2608	-	-	"	-	-	-	-	-	"	250MM
TL	2609	-	-	"	-	-	-	-	-	"	"
TL	2610	-	-	"	-	-	-	-	-	-	Blank Dark
TL	2611	6°S	61°W	Oblique	SW	-	-	25	TO IV HR 46	Langrenus	Dark
TL	2612	"	"	"	"	-	-	25	"	"	Good Exp.
TL	2613	9°S	"	"	S	-	-	32	"	"	T/9 68

[illegible]

SUN ANGLE READ
FOR REV 3APOLLO 8 - MAGAZINE B FILM 50-368

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
ASB-14-2383				High Oblique	West	5.6	1/250	Near SSP			Earth above horizon. Good 250mm
	2384			"	"	"	1/250	"			"
	2385	-	-	"	"	"	"	-	-	-	80mm
	2386	-	-	"	"	"	"	-	-	-	"
	2387	-	-	"	"	"	"	-	-	-	"
	2388	-	-	"	"	"	"	-	-	-	"
	2389	13°S	105°E	"	WSW	"	"	70	10 I, S-14, NE of 10 I, S-1, S-9 Humboldt	"	"
	2390	"	"	"	"	"	"	70	"	"	"
	2391	"	"	"	"	"	"	70	"	"	"
	2392	"	"	"	"	"	"	70	"	"	"
	2393	"	"	"	"	"	"	70	"	"	"
	2394	"	"	"	"	"	"	70	"	"	"
	2395	"	"	"	"	"	"	70	"	"	"
	2396	"	"	"	"	"	"	70	"	"	"
	2397	03S	154°W	V	Vertical	"	"	06	10 I, S-3, Parside 10 V, AS, 10, 12	Near Term. 250mm	"
	2398	03S	154°W	"	"	"	"	06	"	"	"
	2399	03S	155°W	"	"	"	"	07	"	"	"
	2400	03S	155.5W	"	"	"	"	07	"	"	"
	2401	03S	156°W	"	"	"	"	07	"	"	"
	2402	157°W	3°S	"	"	"	"	07	"	"	"
	2403	05S	157W	NV	Near Vert.	"	"	00	"	"	Dark
	2404	05S	157.5W	"	"	"	"	00	"	"	"
	2405	5°S	159°30'W	NV	"	-	-	10	"	"	"
	2406	6°S	160°W	"	"	-	-	10	"	"	"
	2407	"	"	"	"	-	-	10	"	"	"
	2408	5°S	161°30'W	"	"	-	-	11	"	"	"
	2409	4°S	162°W	"	"	-	-	12	"	"	"
	2410	30'S	163°W	"	"	-	-	12	"	"	"
	2411	"	"	"	"	-	-	12	"	"	"
	2412	30'S	165°W	Oblique	Oblique	-	-	15	"	"	"T/O 12
	2413	30'S	165°W	NV	Near Vert.	-	-	15	"	"	"
	2414	30'S	166°W	"	"	-	-	15	"	"	"
	2415	7°S	167°W	"	"	-	-	17	"	"	"

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Excellent Contrast, Stereo

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APOLLO 8 - MAGAZINE B FILM SO-368

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
AS8-14-2416	2416	7° 30' S	171° W	NV	Near Vert.	-	-	21	LO I, S-3 LO II, S-3	Farside	Dark
	2417	8° 30' S	171° 30' W	Oblique	SW	-	-	21	"	"	"
	2418	8° S	170° 30' W	NV	Near Vert.	-	-	21	"	"	"
	2419	8° S	175° W	"	"	-	-	25	"	"	"
	2420	10° S	175° W	NV	"	-	-	25	"	"	Somewhat Dark
	2421	"	"	"	"	-	-	25	"	"	"
	2422	9° S	177° 30' W	"	"	-	-	27	"	"	"
	2423	8° 30' S	180° W	"	"	-	-	31	LO II, S-3, S-5	"	"
	2424	9° S	178° E	"	"	-	-	33	"	"	"
	2425	9° S	177° E	"	"	-	-	34	"	"	"
	2426	10° S	174° E	"	"	-	-	36	"	"	"
	2427	10° S	174° E	"	"	-	-	37	"	"	"
	2428	10° S	172° 30' E	"	"	-	-	38	"	"	"
	2429	10° 30' S	169° E	"	"	-	-	42	"	"	Good Exp.
	2430	10° S	166° E	"	"	-	-	44	LO I, S-9 LO II, S-3, S-5	"	"
	2431	10° S	164° E	"	"	-	-	47	"	"	"
	2432	11° S	165° E	"	"	-	-	45	"	"	"
	2433	10° S	161° 30' E	"	"	-	-	48	"	"	"
	2434	10° S	161° E	"	"	-	-	50	"	"	"
	2435	11° S	157° E	"	"	-	-	48	"	"	"
	2436	12° S	152.5° E	"	"	-	-	49	"	"	"
	2437	12° S	152° E	"	"	-	-	53	"	"	"
	2438	12° S	150° E	Oblique	WNW	-	-	53	"	"	"
	2439	12° S	150° E	"	"	-	-	54	"	"	"
	2440	13° S	143° E	"	"	-	-	71	LO I, S-9 LO II, S-5	"	"
	2441	12.5° S	140° E	"	"	-	-	68	"	"	"
	2442	"	137° 30' E	Oblique	W	-	-	69	"	"	"
	2443	13° S	132° E	Oblique	W	-	-	70	"	"	"
	2444	13° S	127° E	"	NE	-	-	71	"	"	"
	2445	"	"	"	SW	-	-	76	LO I, S-9	"	"
	2446	"	"	"	SW	-	-	75	"	"	"T/O 49
	2447	21° S	128° E	High Oblique	S	-	-	63	"	Tsiolkovsky	"T/O 47
	2448	"	"	"	"	-	-	63	"	"	"

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APOLLO 8 - MAGAZINE B- FILM SO-368

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
AS3-14-2449	2450	21°S	128°E	High Oblique	South	-	-	69	LO I S-9	Tsiolkovsky	T/O 40 Exp.
	2451	"	"	"	"	-	-	69	"	"	" T/O 40
	2452	11°S	113°E	"	W	-	-	77	"	Farside	"
	2453	12°30'S	113°E	"	"	-	-	77	"	"	"
	2454	16°S	112°E	"	WSW	-	-	70	"	"	"
	2455	-	-	Very High Oblique	SSW	-	-	-	-	-	" T/C 52
	2456	-	-	"	"	-	-	-	-	-	"
	2457	-	-	"	"	-	-	-	-	-	"
	2458	-	-	"	"	-	-	-	-	-	"
	2459	-	-	"	"	-	-	-	-	-	"
	2460	-	-	"	"	-	-	-	-	-	"
	2461	-	-	"	"	-	-	-	-	-	"
	2462	-	-	"	"	-	-	-	-	-	"
Transearth	2463	-	-	High Alt Moon	-	-	-	40	Humboldt	Moon	Blue Filter
"	2464	-	-	"	-	-	-	-	-	"	Red "
"	2465	-	-	"	-	-	-	-	-	"	B "
"	2466	-	-	"	-	-	-	-	-	"	R "
"	2467	-	-	"	-	-	-	-	-	"	B "
"	2468	-	-	"	-	-	-	-	-	"	R "
"	2469	-	-	"	-	-	-	-	-	"	R "
"	2470	-	-	"	-	-	-	-	-	"	B "
"	2471	-	-	"	-	-	-	-	-	"	B "
"	2472	-	-	"	-	-	-	-	-	"	R "
"	2473	-	-	"	-	-	-	15	Saa Nectar	"	Good Exp.
"	2474	-	-	"	-	-	-	-	" Crises	"	Good Exp.
"	2475	-	-	"	-	-	-	-	-	"	R Filter
"	2476	-	-	"	-	-	-	-	-	"	B Filter
"	2477	-	-	"	-	-	-	-	-	"	B "
"	2478	-	-	"	-	-	-	-	-	"	R "
"	2479	-	-	"	-	-	-	-	-	"	R "
"	2480	-	-	"	-	-	-	-	-	"	B "
"	2481	-	-	"	-	-	-	-	-	"	B "

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APOLLO 8 - MAGAZINE B FILM 50-368

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
Trans Earth	ASB-14-2482	-	-	High Alt Moon	-	-	-	-	-	-	R Filter
"	2483	-	-	"	-	-	-	-	-	-	OverExposed
"	2484	-	-	"	-	-	-	-	30	Smith Crises	Good Exp.
"	2485	-	-	"	-	-	-	-	-	Fertility	" " " "
"	2486	-	-	"	-	-	-	-	-	-	R Filter
"	2487	-	-	"	-	-	-	-	-	-	B "
"	2488	-	-	"	-	-	-	-	30	Crises Fertility	Good Exp.
"	2489	-	-	"	-	-	-	-	-	Smith	" " " "
"	2490	-	-	"	-	-	-	-	-	"	" " " "
"	2491	-	-	"	-	-	-	-	-	"	" " " "
"	2492	-	-	"	-	-	-	-	-	-	Blue Filter
"	2493	-	-	"	-	-	-	-	-	-	" " " "
"	2494	-	-	"	-	-	-	-	-	-	" " " "
"	2495	-	-	"	-	-	-	-	-	-	" " " "
"	2496	-	-	"	-	-	-	-	-	-	" " " "
"	2497	-	-	"	-	-	-	-	-	-	" " " "
"	2498	-	-	"	-	-	-	-	-	-	Red "
"	2499	-	-	"	-	-	-	-	-	-	" " " "
"	2500	-	-	"	-	-	-	-	-	-	" " " "
"	2501	-	-	"	-	-	-	-	-	-	" " " "
"	2502	-	-	"	-	-	-	-	-	-	" " " "
"	2503	-	-	"	-	-	-	-	-	-	" " " "
"	2504	-	-	"	-	-	-	-	-	-	Blue "
"	2505	-	-	"	-	-	-	-	-	-	Good Exp.
"	2506	-	-	"	-	-	-	-	-	-	" " " "
"	2507	-	-	Transearth	-	-	-	-	-	-	Earth
"	2508	-	-	"	-	-	-	-	-	-	" " " "
"	2509	-	-	"	-	-	-	-	-	-	" " " "
"	2510	-	-	"	-	-	-	-	-	-	" " " "
"	2511	-	-	"	-	-	-	-	-	-	" " " "
"	2512	-	-	"	-	-	-	-	-	-	" " " "
"	2513	-	-	"	-	-	-	-	-	-	" " " "
"	2514	-	-	"	-	-	-	-	-	-	" " " "

Stereo Change Scale

[illegible]

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
8	17-2659	03S	152W	Convergent Stereo		f/5.6	1/250	00	LO I S-3 LOV A-12	Farside	Entire roll shot with 80mm lens
	2660							01			
	2661							02			
	2662							02			
	2663							03			
	2664	04S	157W					03	LO I S-3 LOV A-12		
	2665							04			
	2666							05			
	2667							06			
	2668							07			
	2669	06S	162W					08	LO I S-3		
	2670							09			
	2671							10			
	2671							11			
	2673							12			
	2674							13			
	2675	07S	169W					14	LO I S-3 LO II S-3		
	2676							15			
	2677							16			
	2678							17			
	2679							18			
	2680	08S	174W					19	LO I S-3 LO II S-3		
	2681							20			
	2682							21			
	2683							22			
	2684							23			
	2685	09S	179W					24	LO II S-3		
	2686							25			
	2687							26			
	2688							27			
	2689							28			
	2690	09S	176E					29	LO II S-3, S-5		
	2691							30			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
8	2692		.	Convergent Stereo		f/56	1/250	31		Farside	
	2693							32			
	2694	10S	172E					33			
	2695							34			
	2696							35			
	2697							36			
	2698							37			
	2699							38			
	2700	11S	167E					38	LOI S-9		
	2701							39	FOH S-3, S-5		
	2702							40			
	2703							41			
	2704							42			
	2705	11S	162E					43	LOI S-9		
	2706							44	FOH S-3, S-5		
	2707							45			
	2708							46			
	2709							47			
	2710	12S	157E					48	LOI S-9		
	2711							49	FOH S-5		
	2712							50			
	2713							51			
	2714	12S	152E					52	LOI S-9		
	2715							53	FOH S-5		
	2716							54			
	2717							55			
	2718							56			
	2719							57			
	2720	12S	147E					57.5	LOI S-9		
	2721							58	FOH S-5		
	2722							59			
	2723							60			
	2724							61			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
8	2725	12S	140E	CS		f/5.6	1/250	62	LOI S-9 LOII S-5 LOIII S-21.5	Farside	
	2726							63			
	2727							64			
	2728							65			
	2729							66			
	2730	12S	136E					68	LOI S-9 LOII S-21.5		T/O 30
	2731							69			
	2732							70			
	2733							71			
	2734							72			
	2735	12S	129E					73	LOI S-9 LOIII S-21.5		
	2736							74			
	2737							75			
	2738							76			
	2739							77			End of Conver
	2740	12S	122E	Low Oblique	Forward-West			78	LOI S-9 LOIII S-21.5		gent Stereo
	2741							79			
	2742	11S	120E		Forward-West			80	LOI S-9 LOII S-14 LOIII S-21.5		
	2743							80			
	2744	10S	116E		Forward-West			81	LOI S-9 LOII S-14		Sub-Solar Point
	2745							82			
	2746	10S	115E		Forward-West			81	LOI S-9 LOII S-14		
	2747							81			
	2748							81			
	2749	10S	112E	High Oblique	Forward			80.5	LOI S-9 LOII S-14		
	2750							80			
	2751							79			
	2752	09S	109E		Forward			79	LOI S-9 LOII S-14		
	2753							78			
	2754							78			
	2755	09S	106E		Forward			77	LOI S-9 LOII S-14		
	2756							77			
	2757							76			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
8	2758			High Oblique	Forward	f/5.6	1/250	76			
	2759							75			
	2760							75			
	2761	08S	102E	Convergent Stereo	Forward			74	LOII S-14	SE of Smythii	Start Convergent Stereo
	2762							74			
	2763							73			
	2764							73			
	2765	08S	100E		North Looking			72	LOII S-14	SE of Smythii	
	2766							72			
	2767							71			
	2768							71			
	2769							70			
	2770							70			
	2771							69			
	2772	07S	96E		Rear (east) looking North.			69	LO II S-14	SE of Smythii	
	2773							69			
	2774							68			
	2775							68			
	2776							67			
	2777	10S	95E		Rear (East)			66	LOII S-14	SE of Smythii	
	2778							65			
	2779							64			
	2780	11S	91E		Rear (East)			63.5	LOII S-14	SE of Smythii	
	2781							60			
	2782							58			
	2783							57			
	2784							55			
	2785	09S	90E		Rear (East)			53	LOII S-14, LOIV 27, 34	Kastner P	
	2786							52			
	2787							51			
	2788							50			
	2789	08S	76E		Rear (East)			49	LOV-34	Kastner	
	2790							48			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	CHUFF COVERAGE	AREA	REMARKS
8	2791			Convergent Stereo	Rear (East)	f/5.6	1/250	47			
	2792							46			
	2793							45			End Convergent Stereo
	2794			Oblique	Forward						
	2795	05S	67E	L.O.	Forward				LOIV-39,46	MacLaurin	
									178,184,185	M	
	2796										
	2797	02S	58E	H.O.	Forward			32	LOI-54	Langrenus K	
									LOIV-39,40		
									46,47,177		
									184,185		
	2798										
	2799										
	2800										
	2801	01N	51E	H.O.	Forward			25	LOI S-4, S-5	Webb	High Horizon
									LOIV 46,47		
									53,54,177		
									184,185		
	2802										
	2803										
	2804										
	2805	--	--	H.O.	Forward			29	LOI S-5	TarantiusK	SA picked at bottom of the frame
									LOV V-3-1		
									LOIV-53,54		
									60,61,184,185		T/O 80
	2806										T/O 80
	2807										"
	2808										"
	2809										"
	2810	--	--	H.O.	Forward			23	LOI A1, S5	Tarantius	"
									LOII S-1		
									LOII P-2	LOIV 65,66,72,73	"
									LOV V3-1	vs. 1, vs. 2, vs. 3	"

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
8	2811							21		Secchi	T/O-80
	2812										"
	2813										"
	2814										"
	2815	--	--	H.O.	Forward			17	LOV A-1, S-6 LOII S-1, S-2, P-1 LOIII P-2 LOIV-65, 66 72, 73 LOV 3, 1, 5, 1, 8A&B	Secchi	"
	2816										"
	2817										"
	2818							15	LOI A-1, A-2, S-6 LOII P-1, P-2, S-2 LOIV-65, 66 72, 73, 77, 78 LOV 8, 9, 11, 12	Tarunius F	"
	2819										"
	2820	--	--	H.O.	Forward			10	LOI S-9, A-3 LOII P-2, F-5, P-6 LOIII P-1, P-5, P-6 LOIV 72, 73, 77, 78 LOV 79, 11A 8B, 12, 13, 16A&B	Maskelyne F	"
	2821										"
	2822										"
	2823										"

[illegible]

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	12-2044	04S	148W	Vertical Stereo		f/2.8	Shutter Speed	0	LOI S-3 LOV A-3, A-12	Farside	Used 80mm Lens on Vert Stereo Pass
	2045						15 1/250 for on tire	0			
	2046	04S	150W				roll	0			
	2047							1			
	2048							2			
	2049							4			
	2050							5			
	2051							6			
	2052	05S	157W					7	LOI S-3		
	2053							8			
	2054							9			
	2055							10			
	2056							11			
	2057							12			
	2058							13			
	2059					f/4		14			Exposure Change
	2060							14			
	2061							15			
	2062	06S	167W					16	LOI S-3		
	2063							17			Extra Frame
	2064							18			
	2065							19			
	2066							20			
	2067							21			
	2068							22			
	2069	08S	173W					23	LOI S-3 LOII S-3		
	2070							24			
	2071							25			
	2072							26			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	2073			Vertical Stereo		f/4		27		Farside	
	2074							28			
	2075							29			
	2076	09S	180W			f/5.6		29	LOII S-3, S-5		Exposure Change
	2077							30			
	2078							31			
	2079							32			
	2080							33			
	2081							34			
	2082							35			
	2083							35			
	2084							36			
	2085							37			
	2086							38			
	2087							39			
	2088	11S	168E					40	LOI S-9 LOII S-3, S-5		
	2089							41			
	2090					f/8		42			Exposure Change
	2091							43			
	2092							44			
	2093							45			
	2094							46			Extra Frame
	2095							47			
	2096							48			
	2097							49			
	2098							50			
	2099							51			
	2100	12S	157E					51.5	LOI S-9 LOII S-3, S-5		

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REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	12-2101			Vertical		f/8		52		Farside	
	2102			Stereo				53			
	2103							54			
	2104							55			
	2105							56			
	2106							57			
	2107							58			
	2108							59			
	2109							60			
	2110							61			Extra Frame
	2111	13S	174#					61	LO IS-9		
									LOII S-5		
	2112							62			
	2113							63			
	2114							64			
	2115							65			
	2116							66			
	2117	14S	140E					66.5	LOI S-9		
									LOII S-5		
									LOIII S-21.5		
	2118							67			
	2119							68			
	2120							69			
	2121							70			
	2122	13S	134E					71.5	LOI S-9		
									LOIII S-21.5		
	2123							72			
	2124					f/11		73			Exposure Change
	2125							74			
	2126							75			
	2127							76			
	2128							76			

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D-4

REV.	FRAME	LAT	LONG.	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	12-2129	12S	127E	Vertical Stereo		F/11		77	LOI S-9 LOIII S-21.5	Farside	
	2130							77			
	2131							78			
	2132							78			
	2133							79			
	2134							79			
	2135							80			
	2136	12S	120E					80	LOI S-9 LOIII S-21.5		
	2137							80			Start S/C Roll
	2138							79			
	2139							79			
	2140							78			
	2141	12S	113					78	LOI S-9 LOII S-14 LOIII S-21.5		
	2142							77			
	2143							77			
	2144							76			
	2145							76			
	2146	11S	108E					75	LOIII S-21.5 F.S. LOII S-14 LOI S-9		
	2147							75			
	2148							74			
	2149							74			
	2150					f/8	1/250	73			Exposure Change
	2151							73			
	2152							72			
	2153							72			
	2154							71			

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	12-2155	10S	101E	Vertical		f/8	1/250	70	LOII S-14	SE Smyth	
	2156			Stereo				69			
	2157							69			Extra Frame
	2158							68			
	2159							67			
	2160							66			
	2161							65			
	2162							64			
	2163	09S	95E					63.5	LOII S-14	SSE Smyth	
	2164							63			
	2165							62			
	2166							61			
	2167							60			
	2168							59			
	2169							58			
	2170							58			Extra Frame
	2171							57			
	2172	09S	85E					56	LOII S-14	S Smyth	
									LOIV 27, 178		
	2173							54			
	2174							53			
	2175							52			
	2176							50			
	2177							49			Extra Frame
	2178	08S	79E			f/11	1/250	48	LOIV 27, 34	Kastner	Exposure Change
	2179							46.5		Kastner	End of V.S. Pass
	2180	08S	76E	Low Oblique	Forward looking West			45	LOIV 34, 29, 176	Kastner	80mm lens
	2181	07S	73E	L.O.	Forward looking West			42.5	LOIV 39, 184, 185	East of Kastner	T/O 65

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
4	2182	07S	71E	H.O. Horizon	Forward West	f/11		41	LOIV 39, 184, 185		80mm lens T/O 65
	2183	07S	69E	H.O. Horizon	Forward West			38	LOIV 39, 184, 185	West of Langrenus	
	2184	08S	67E	H.O. Horizon	Forward West			37	LOIV 39, 184, 185	West of Langrenus	T/O 68
10 (TEI)	2185	--	--					--		Earth	
	2186	--	--					--		Earth	
	2187	40S	110E					47		S of Tsolkovsky	
	2188	--	--					--		Earth & Lunar Horizon	
	2189	26S	72E	H.O. Horizon	South			35	LOIV 27, 23, 34, 38, 39, 40, 52, 53, 59, 60, 64, 184, 185	Humboldt T/O 58 T/O 63	
	2190	20S	79E	H.O. Horizon	South			45		Humboldt T/O 58	
	2191				BLANK						Overexposed
	2192	40S	100E	H.O.	South			43	LOIV 9, 10, 11, 12, 5, 6, 8	Mare Australe	250mm lens
	2193	27S	90E	Low Oblique	South			50	Same as 2189	Humboldt T/O 58 T/O 63	
	2194	33S	100E		South			51	LOIV S-121, 5	Mare Australe	
	2195	26S	107E		South			61	LOI S-9	E. of T/O 54	
	2196	21S	130E	H.O. Horizon	East			68	LOIII S-21, 5	Mare Australe	
									LOI S-9	Tsolkovsky	
									LOII S-5		
									LOIV 146, 147		

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
10(TET)	2197	08S	127E	H.O.	East	f/11	1/250	80	LOI S-9	N. of	Overexposed 250mm lens T/O 28, 29, 31, 32, 33, 35, 36, 37, 41, 44
	2198	08S	126E	Horizon H.O.	East	"	"	82	LOII S-3, S-4 LOII S-5, S-14	Tsiolkovsky 4 N. of	" T/O 32, 33, 33, 35, 36, 37, 41, 44
	2199	08S	127E	Low	East	"	"	825		N. of	T/O 44, 45
	2200	11S	108E	Oblique Low	East	"	"	74	LOI S-1, S-9	Tsiolkovsky Farside	T/O 45
	2201	10S	100E	Oblique Near	-	"	"	68	LOII S-14	East of	T/O 58
	2202	05S	90E	Vertical Near	-	"	"	60	LOII S-14	Smythii	T/O 59
	2203	09S	68E	Vertical Near	-	"	"	37	LOI S-4	Langrenus	T/O 59, 68
	2204	03S	73E	Near Vert.	North	"	"	43	LOIV 28, 34	Gilbert	T/O 59, 67
	2205	03N	73E	Near Vert.	North	"	"	43	35, 39, 40, 46	Gilbert	T/O 59, 67
	2206	07N	74E	Near Vert.	North	"	"	43	47, 53, 54, 165	Sea of Waves	T/O 66, 59, 67
	2207	07N	82E	Near Vert.	Northwest	"	"	52	177, 178, 184, 185	Neper	T/O 59
	2208	09N	86E	Near Vert.	Northwest	"	"	54	191, 192	Neper	
	2209	24N	100E	H.O. Horizon	North	"	"	56	LOII S-14	Gilbert Polaris Curve	
	2210	36S	85E	Low Oblique	South	"	"	40	LOIV 17, 18, 20, 24, 165	Monnosch	
	2210	35S	90E	Low Oblique	South	"	"	42	LOI S-9	Mare	
	2212	37S	101E	Low Oblique H.O.	South	"	"	47	LOIV 9, 10, 11, 12, 27, 33, 34, 38, 39	ABEL	T/O 52
	2213	35S	110E	Horizon	Southeast	"	"	53	LOIV 9, 10, 11, 12, 27, 35	Australe	T/O 52, 54
	2214	36S	116E	"	"	"	"	53	"	"	T/O 38, 49, 52

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
	13-2215	10°15'S	55°30'E	Low Oblique	South	f/5.6	1/250	23	LO IV F60 & 65	Colombo	TO 72
	2216	10°15'S	55°20'E	"	"	"	"	22	"	"	"
	2217	10°00'S	53°45'E	"	"	"	"	21	"	"	"
	2218	11°30'S	51°30'E	"	"	"	"	19	"	"	"
	2219	11°45'S	50°45'E	"	"	"	"	19	"	"	"
	2220	11°55'S	49°30'E	"	"	"	"	18	"	"	"
	2221	12°30'S	48°00'E	"	"	"	"	17	"	"	"
	2222	11°30'S	47°30'E	"	"	"	"	15	"	"	"
	2223	11°55'S	46°30'E	"	"	"	"	14	"	"	"
	2224	11°15'S	45°00'E	"	"	"	"	13	"	"	"
	2225	10°45'S	44°45'E	"	"	"	"	12	"	"	"
	2226	10°45'S	42°15'E	"	"	"	"	11	"	"	"
	2227	12°30'S	42°30'E	"	"	"	"	10	"	"	"
	2228	06°00'S	38°30'E	"	"	"	"	07	"	Pyrenees Mts	Terminator shot
	2229	05°30'S	37°00'E	"	"	"	"	06	"	"	including target
	2230	05°30'S	36°30'E	"	"	"	"	06	"	"	"
	2231	06°00'S	35°30'E	"	"	"	"	04	"	"	"
	2232	pp in darkness	Oblique	Low Oblique	South	f/5.6	1/250	03	LO IV F65	"	90
	2233	"	"	"	"	"	"	03	"	"	"
	2234	"	"	"	"	"	"	02	"	"	"
	2235	"	"	"	"	"	"	02	"	"	"
	2236	"	"	"	"	"	"	02	"	"	"
	2237	"	"	"	"	"	"	02	"	"	"
	2238	"	"	"	"	"	"	02	"	"	"
	2239	"	"	"	"	"	"	02	"	"	"
	2240	"	"	"	"	"	"	02	"	"	"
	2241	"	"	"	"	"	"	02	"	"	"
	2242	"	"	"	"	"	"	02	"	"	"
	2243	15°00'S	35°00'E	High Oblique	South	"	1/250	03	"	Pracastorius	"
	2244	12°00'S	162°00'W	Oblique	"	"	"	10	LO II F75	"	TO 12
	2245	11°00'S	164°30'W	"	"	"	"	15	LO I S-3	"	"
	2246	15°00'S	165°00'W	High Oblique	"	"	"	12	"	"	"
	2247	14°00'S	167°00'W	"	"	"	"	15	"	"	"

Oblique Stereo

APOLLO 8 - MAGAZINE E FILM 3400

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
	2248	18°00'S	130°00'E	Low Oblique	South	f-8	1/250	70	LO I S-9		TO 40
	2249	17°30'S	127°00'E	"	"	"	"	72	LO II S-21.5	Tsiolkovsky	TO 36(?)
	2250	17°00'S	126°30'E	"	"	"	"	73	"	"	"
	2251	17°00'S	125°00'E	"	"	"	"	74	"	"	"
	2252	20°00'S	129°00'E	High Oblique	"	"	"	71	"	"	TO 40
	2253	20°00'S	126°30'E	"	"	"	"	70	"	"	"
	2254	21°00'S	126°30'E	High Oblique	"	"	"	70	"	"	"
	2255	20°00'S	124°30'E	High Oblique	"	"	"	70	"	"	"
	2256	20°00'S	116°30'E	High Oblique	"	"	"	72	LO I S-6; S-7	W. of "	Target 49
	2257	0°30'N	35°30'E	N.Vert.	South	f-5.6	1/250	05	A-2: LO IV	Western Edge	Terminator
	2258	0°30'N	35°15'E	"	"	"	"	04	V-6; V-12	of Sea of	shot
	2259	0°30'N	39°45'E	"	"	"	"	03	LO IV 72&73	Fertility	"
	2260	0°30'N	34°00'E	"	"	"	"	02	"	"	"
	2261	0°30'N	33°30'E	"	"	"	"	01	"	"	"
	2262	15°00'S	93°00'E	Low Oblique	"	"	"	63	LO II S-14	N.E. of Humboldt	Target 58
	2263	14°00'S	90°30'E	High Oblique	"	"	"	62	"	"	"
	2264	18°00'S	93°00'E	High Oblique	"	"	"	62	"	"	"
	2265	18°00'S	91°30'E	"	"	"	"	60	"	"	"
	2266	13°30'S	79°30'E	High Oblique	South	f-8	1/250	47	LO IV 178	"	"
	2267	13°30'S	78°30'E	"	"	f-8	"	46	"	"	"
	2268	14°30'S	78°00'E	"	"	"	"	45	"	"	TO 63
	2269	18°00'S	79°00'E	High Oblique	"	"	"	45	"	"	TO 63
	2270	11°00'S	71°00'E	High Oblique	"	"	"	39	LO IV 184	"	TO 65
	2271			High Oblique	West	f-5.6(?)	1/250 (?)	08	LO S-7	Sea of	Training
	2272			"	"	"	"		LO II P-2	Tranquility	Sequence
	2273			"	"	"	"		LO IV 73.76	"	"
	2274			"	"	"	"	05	LO V-5.1, V-6,	"	"
	2275			"	"	"	"		V-9.1, V-11a	"	"
	2276			"	"	"	"		& 11b & V-12	"	"
	2277			"	"	"	"		"	"	"
	2278			"	"	"	"		"	"	"
	2279			"	"	"	"		"	"	"
	2280			"	"	"	"	02	"	"	"

Principal Line runs from

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
	2281		42°00'E; 30°15'N to 35°30'E; 4°30'N	High Oblique	West	f-5.6(2)	1/250 (?)	02	"	Sea of Tranquility	Training Sequence
	2282			Oblique	"	"	"		"	"	"
	2283			"	"	"	"		"	"	"
	2284			"	"	"	"		"	"	"
	2285			"	"	"	"		"	"	"
	2286			"	"	"	"		"	"	"
	2287			"	"	"	"		"	"	"
	2288			"	"	"	"		"	"	"
	2289			"	"	"	"		"	"	"
	2290			"	N. West	"	"		"	"	"
	2291			"	"	"	"		"	"	"
	2292			"	"	"	"		"	"	"
	2293			"	"	"	"		"	"	"
	2294			"	"	"	"		"	"	"
	2295			"	"	"	"		"	"	"
	2296			"	"	"	"		"	"	"
	2297			"	"	"	"		"	"	"
	2298			N. Vert.	"	"	"		"	"	"
	2299			"	"	"	"		"	"	"
	2300			"	N. East	f-5.6	"	02	"	"	"
	2301			"	"	"	"		"	"	"
	2302			"	"	"	"		"	"	"
	2303			Low Oblique	"	"	"		"	"	"
	2304			"	"	"	"		"	"	"
	2305			"	"	"	"		"	"	"
	2306			"	"	"	"		"	"	"
	2307			"	"	"	"		"	"	"
	2308			"	"	"	"		"	"	"
	2309			"	"	"	"		"	"	"
	2310	06°30'S	150°30'W	Low Oblique	South	f-5.6	1/250	01	LOI S-3		Terminator
	2311	07°00'S	150°30'W	"	"	"	"	02	"		shot(farside)
	2312	08°30'S	150°30'W	"	"	"	"	02	"		

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
	2313	10° 30' S	149° 30' W	Low Oblique	South	f-5.6	1/250	01	LOI S-3		Terminator (farside)
	2314	12° 00' S	150° 30' W	"	"	"	"	01	"		
	2315	13° 30' S	151° 00' W	"	"	"	"	01	"		
	2316	9° 00' S	153° 30' W	"	"	"	"	04	"		
	2317	07° 00' S	159° 30' W	"	"	f-5.6	"	10	LOI S-3		
	2318	04° 30' S	165° 30' W	"	"	"	"	17	"		TO 12
	2319	18° 00' S	163° 30' W	High Oblique	"	f-5.6	"	12	"		TO 10
	2320	15° 00' S	170° 00' W	Low	SE	f-5.6	"	17	"		
	2321	14° 30' S	174° 30' E	Oblique	SW	"	"	32	LO II S-5		Target 20
	2322	15° 00' S	172° 30' E	"	SE	"	"	37	"		Target 19
	2323	15° 00' S	172° 00' E	"	"	"	"	38	"		"
	2324	17° 00' S	171° 00' E	"	"	"	"	38	"		"
	2325	17° 30' S	168° 00' E	"	"	"	"	41	"		Target 23
	2326	16° 00' S	158° 00' E	"	"	"	"	51	"		
	2327	19° 00' S	144° 00' E	"	SE	f-8	1/250	61	MR 121-LOI III-E. of S-14, LOI II towards Moon earth		Target 28
	2328	17° 00' S	140° 00' E	Low Oblique	SE	f-8	1/250	57	MR 115(LO I) E. of S-14, LOI II towards Moon earth		Target 31(p)
	2329	PP in space		High Oblique	S West		1/250	-	S-21.5	Gibbs	shot
	2330	00° 00' S	107° 20' E	"	North		"	76	"	E. of Smythii to horizon	
	2331	1° 30' N	90° 00' E	Low Oblique	North	f-8	1/250	59	LO I S-1		Target 59
	2332	2° 30' N	87° 30' E	"	North	f-8	1/250	57	LO II S-14		(in part)
	2333	Over exposed frame, Insufficient detail to plot (High Oblique)									
	2334	PP in darkness		Low Oblique	North	f-5.6	1/250	01	LO IV 78	Northern Terminator	
	2335	11° 30' N	31° 00' E	Low Oblique	North	"	"	01	"	part of (nearside)	
	2336	12° 00' N	31° 00' E	High Oblique	North	"	"	01	"	Sea of Tranquility	
	2337	15° 00' N	31° 30' E	"	"	"	"	01	"	"	
	2338	PP on Horizon		"	"	"	"	01	"	"	
	2339	1° 00' S	54° 00' E	"	West	f-5.6	1/250	25	LOI S-4&S-5	Sea of Tranquility	
	2340	00° 30' S	50° 00' E	"	"	"	"	20	LOI S-6, LOI S-1		
									LOI P-2		
									LOI V 53-54,		
									50-61		
	2341	PP on Horizon		"	"	"	"	17	LOI V-3, V-5.1		
									V-6; V-8a&b		
	2342	00° 30' N	38° 00' E	"	"	"	"	10	LOI A-1; S-6; S-7		

Target plot is questionable

APOLLO 8 - MAGAZINE E FILM 3400

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
	2343	02°00'N	35°00'E	High Oblique	West	f-5.6	1/250	05	LO II P-2		
	2344	PP on Horizon		"	Northwest	"	"	06	LO III P-2		
	2345	PP in Space		"	"	"	"	03	LO IV V-5.1, V-6		
	2346	PP in Space		"	"	f-4	1/250	01	V-11a&b; V-12, V-9.1		
	2347	PP in Space		"	West	"	"	01	LO IV 63, 73, 78	Sea of Tranquility	
	2348	14°30'N 30°00'E		"	North	f-2.8	"	01	LO V-9.1	NW of Sea of Tranquility	
	2349	13°00'N 30°15'E		Low Oblique	"	"	"	01	"	"	Terminator shot
	2350	15°00'N 30°00'E		"	"	"	"	01	"	"	nearside
	2351	PP on Horizon		"	"	"	"	01	"	"	
	2352	TEI		Moon Shot, 80mm lens							
	2353	"		"	"	"					
	2354	"		"	"	"					
	2355	"		"	"	"					
	2356	"		"	"	"					
	2357	"		"	"	"					
	2358	"		"	"	"					
	2359	TEI		Moon	Shot	250mm lens					
	2360	"		"	"	"	"				
	2361	"		"	"	"	"				
	2362	"		"	"	"	"				
	2363	"		"	"	"	"				
	2364	"		"	"	"	"				
	2365	"		"	"	"	"				
	2366	"		"	"	"	"				
	2367	"		"	"	"	"				
	2368	"		"	"	"	"				
	2369	TEI		Earth	Shot	250mm lens					
	2370	"		"	"	"	"				
	2371	"		"	"	"	"				
	2372	"		"	"	"	"				
	2373	"		"	"	"	"				
	2374	"		"	"	"	"				
	2375	"		"	"	"	"				

[illegible]

APOLLO 8 - MAGAZINE F FILM S0121

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
TL	15-2535									Earth	80mm
TL	2536									"	80mm
TL	2537									"	80mm
TL	2538										
TL	2539									Earth	80mm
TL	2540									"	80mm
TL	2541									"	80mm
TL	2542									"	80mm
TL	2543									"	80mm
TL	2544									"	80mm
TE	2545									Moon	80mm
TE	2546									Moon	80mm
TE	2547									Moon	80mm
TE	2548									Moon	80mm
TE	2549									Earth	80mm Lens
TE	2550									Earth	80mm Lens
TE	2551									Earth	250mm Lens
TE	2552									"	"
TE	2553									"	"
TE	2554									"	"
TE	2555									"	"
TE	2556									"	"
TE	2557									"	"
TE	2558									"	"
TE	2559									"	"
TE	2560									"	"
TE	2561									"	"
TE	2562									"	"
TE	2563-2573									Earth	80mm Lens
TE	2574-2580									Earth	250mm Lens

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
AS8-18-2828	8S	149W	Near Vert.	South	Unknown	1/250	0			Farside	Terminator
	2829	9S	149W	"	"	"	0			"	"
	2830	10S	149W	Low Oblique	"	"	0			"	"
	2831	11S	149W	"	"	"	0			"	"
	2832	15S	148W	"	"	"	0			"	"
	2833	-	-	High Oblique	"	"	-			"	"
	2834	16S	158W	"	"	"	8			"	"
	2835	16S	171W	Low Oblique	"	"	20			"	"
	2836	19S	179W	High Oblique	"	"	28			"	"
	2837	16S	175E	Vertical	"	"	34			"	T/O 20 (Partial)
	2838	14S	174E	Low Oblique	"	"	36			"	"
	2839	20S	174E	High Oblique	"	"	34			"	"
	2840	16S	173E	Low Oblique	"	"	36			"	T/O 20 (Partial)
	2841	15S	172E	"	"	"	37			"	T/O 20 (Partial)
	2842	17S	167E	"	"	"	42			"	T/O 23
	2843	21S	157E	"	"	"	48			"	Should be checked
	2844	15S	155E	"	East	"	54			"	Uncertain
	2845	06S	85E	NV	-	"	57			"	T/O 59
	2846	08.5S	81E	NV	South	"	48			"	"
	2847	11S	78E	NV	South	"	47			"	"
	2848	14S	76E	NV	South	"	44			"	T/O 65
	2849	16S	75E	NV	South	"	42			"	T/O 62 (Partial)
	2850	-	-	High Oblique	East	"				Mare Nectaris	
	2851	14N	67E	Low Oblique	North	"	35			Mare Crisium	Slightly Blurred
	2852	Not Plotted	same area as 2853							"	
	2853	10N	72E	"	North	"	47			"	
	2854	03S	110E	High Oblique	East	"	03			E. of Symphii	Slightly Blurred
	2855	Same area as 2854								Mare Crisium	Slightly Blurred
	2856	26N	58E	High Oblique	North	"	20		Possible Filter	"	Slightly Blurred
	2857	34N	63E	"	"	"	20		"	Mare Recunditatis	
	2858	-	-	"	East	"				Passier	
	2859	-	-	"	East	"				Massiera	

REV.	FRAME	LAT	LONG	MODE	DIRECTION	F-STOP	SHUTTER SPEED	SUN ANGLE	OTHER COVERAGE	AREA	REMARKS
A88-18-2860		39N	63E	High Oblique	North East	Unknown	1/250			Palus Sonni	
	2861	-	-	"	"	"	"			Newcomb	T/O 67 (Partial)
	2862	-	-	"	"	"	"			Geminus	
	2863	03N	66E	Low Oblique	North	"	"	35			
	2864	13N	65E	"	North	"	"	33			
	2865	24N	67E	High Oblique	North	"	"	30			
	2866	36N	68E	"	North	"	"	25			
	2867	-	-	"	North	"	"				PP in space
	2868	24S	95E	"	SW	"	"	55		Farside	T/O 54
	2869	16S	92E	Low Oblique	West-South	"	"	58		Farside	
	2870	04S	95E	High Oblique	South	"	"	65		Mare Smythii	T/O 56
	2871	11N	97E	High Oblique	West-North	"	"	65		Uliot-Curie	T/O 55
	2872	24N	113E	"	"	"	"	50		"	
	2873			Blurred Low Obliques of Eastern Portion of Mare Crisium							
	2874			Looking North, Not Plotted.							
	2875	-	-	High Oblique							Blurred
	2876	-	-	"							Blurred
	2877	Not Plotted		Mare Smythii - Blurred							
	2878	13N	64E	Low Oblique	North			33	Possible Filter	Mare Crisium	Slightly Blurred
	2879	13N	64E	"	North			33	"	"	
	2880	05S	58E	NV	South			28	"	Langrenus	Slightly Blurred
	2881	03S	56E	NV	South			28	"	"	T/O 68
	2882	-	-	High Oblique	North				"	Gauss	
	2883		Same	Area As 2882					"		Exposure Change
	2884	-	-	High Oblique	Northwest			57	"	Uliot-Curie	
	2885	22N	94E	"	North				"	"	Exposure Change Very high Horizon
	2886	-	-	"	North				"		Photo
TE	2887	-	-	"	Unable to Locate					Entire Moon	
TE	2888	-	-							"	Exposure Change
TE	2889	-	-						Possible Filter	"	"
TE	2890	-	-						"	"	"
TE	2891	-	-						"	"	"
TE	2892	-	-						"	"	"

[illegible]

SECTION 6
Apollo 9
(Reference 6)



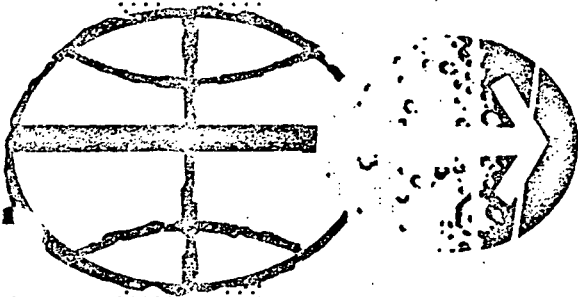
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

APOLLO 9

PHOTOGRAPHIC PLOTTING AND INDEXING REPORT

(Including Aircraft Underflights)

NOTE: Appendix C, which contains Aircraft Underflights in the United States, has been deleted from this copy of the document.



Prepared By
MAPPING SCIENCES LABORATORY
FOR EARTH RESOURCES DIVISION
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MANNED SPACECRAFT CENTER

HOUSTON, TEXAS

- October / 1969



APOLLO 9 PHOTOGRAPHIC
PLOTING AND INDEXING REPORT
(Including Aircraft Underflights)

(Note: Aircraft Underflight reports not included in
this copy)

October 1969

Submitted by
Mapping Sciences Laboratory
National Aeronautics and Space Administration
Manned Spacecraft Center

PREFACE

Prepared for NASA Earth Resources Division by the Mapping Sciences Laboratory, Manned Spacecraft Center, Houston, Texas and the Lockheed Electronics Company, Houston Aerospace Division under contract NAS 9-5191 (in response to Job Order 60-114, Action Document 114.24-4, Apollo 9 Preliminary Screening).

ACKNOWLEDGEMENT

(Not included in original)

ABSTRACT

This paper is a plotting and indexing report of the Apollo 9, 16mm, 70mm handheld, and multispectral photographs and photographs taken by underflying aircraft. The methods used to plot and index the photographs are described for each type of photography. The catalogues and index maps of the photographs are appendices to the report.

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(Note: Original Table of Contents page, reproduced here, is grossly defective. Tables of imagery are included in Appendices, which begin on what would be page 15 or original report, which is page 234 of this compilation. Appendix A lists 70mm photographs, and Appendix B lists 16mm photographs, both from space. Appendix C, which lists photographs from aircraft underflights, is not included here.)

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Section

APPENDIX A	Apollo 9 70mm Spacecraft Photographic Catalogue and Photographic Index Maps.
APPENDIX B	Apollo 9 16mm Spacecraft Photographic Catalogue.
(APPENDIX C)	Apollo 9 Mission Aircraft Underflight Catalogue and Underflight Index Maps. Deleted from this copy of the document.

A. INTRODUCTION

Background

The photographs from each spacecraft mission are catalogued and indexed to provide reference, of the available photographs, to the public and scientific community. Each mission produces hundreds of photographs which are useful for many different types of discipline studies. As the number of photographic frames grows, it becomes increasingly more important to catalogue and index the photographs.

Objective

The objective of this report is to provide a catalogue and index of the earth-view photographs taken from Apollo 9 and from supporting aircrafts flown during the Apollo 9 mission. The report includes pertinent photographic parameters, e.g. film, filter, altitude, etc., that may be helpful to users in evaluating the images and extracting useful data for analyses.

Plan of Report

The report, catalogue, and index are divided into sections by photographic platform, with subdivisions according to film size or sensor type. The text of the report describes the procedures and data content of the catalogues. The various types of photographic catalogues and index maps are included as appendices to the report.

B. DISCUSSION

1. Spacecraft photographs, 70mm

a. Plotting

The photographs are plotted on ACIC Operational Navigation and World Aeronautical Charts (ONC, WAC) at a scale of 1:1,000,000. The plotting was accomplished by comparing the topographic and planimetric detail of the photographs to the maps and marking the maps where the principal point is located. The principal point of the photograph was obtained from the central position of the cross-hairs of a clear overlay placed over the 70mm contact film transparency.

Figures 1 and 2 are index maps published by the Aeronautical Chart and Information Center displaying the sequence and location of the Operational Navigation Chart series throughout the world. These maps, compiled at 1:1,000,000 scale were used to determine the coordinates of the principal points for Apollo 9, photographs. World Aeronautical Charts were used for plotting where ONC's were lacking. The above circumstances were seldom, and do not justify the incorporation of a WAC index in this publication.

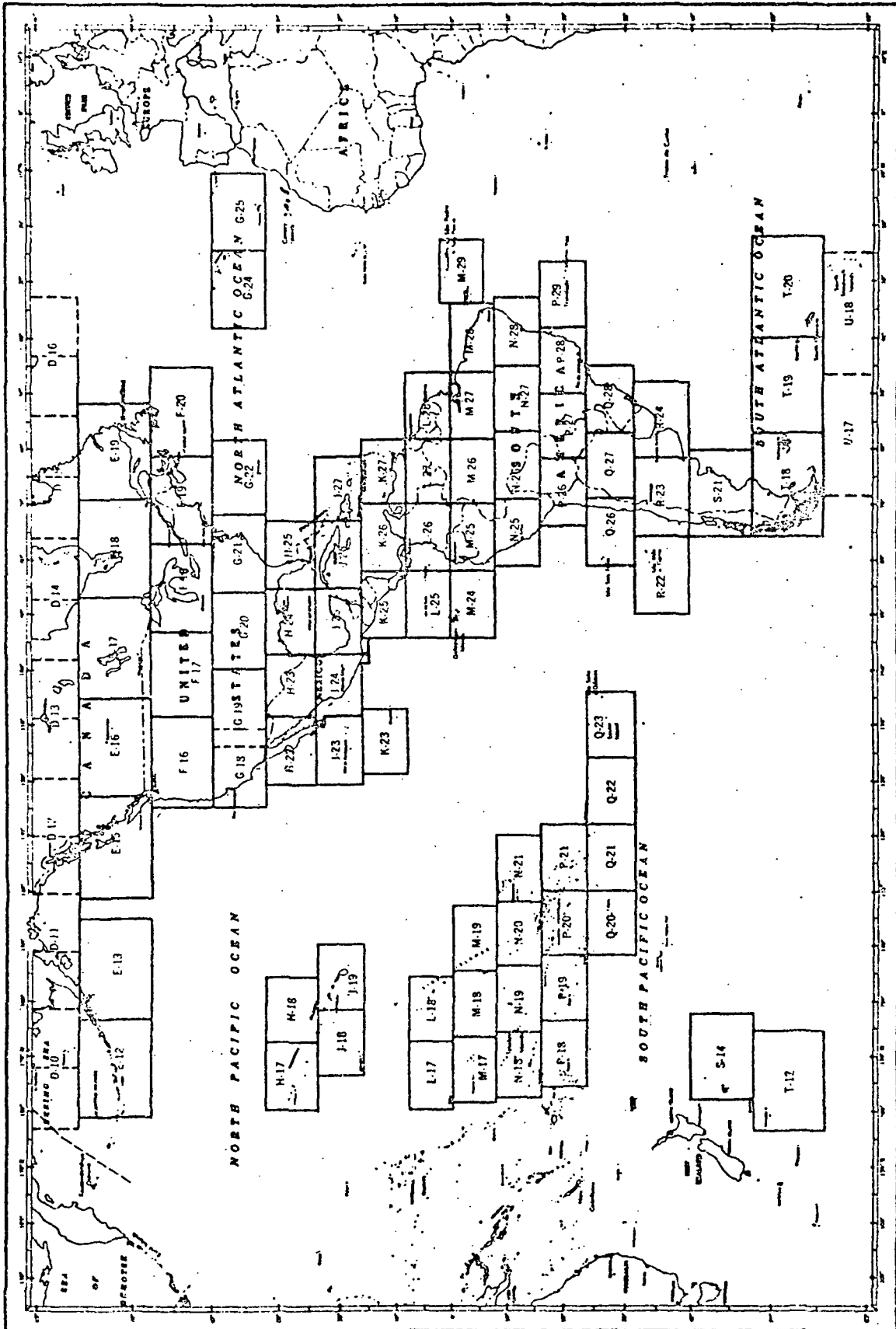
The photographs were also plotted on portions of the Army Map Service Apollo Earth Landmark Index map, scale 1:20,000,000 and reproduced at a reduced scale as Appendix A to this report, entitled Apollo 9 70mm Spacecraft Photographic

Figure 1

INDEX NO. 3
Code ONC

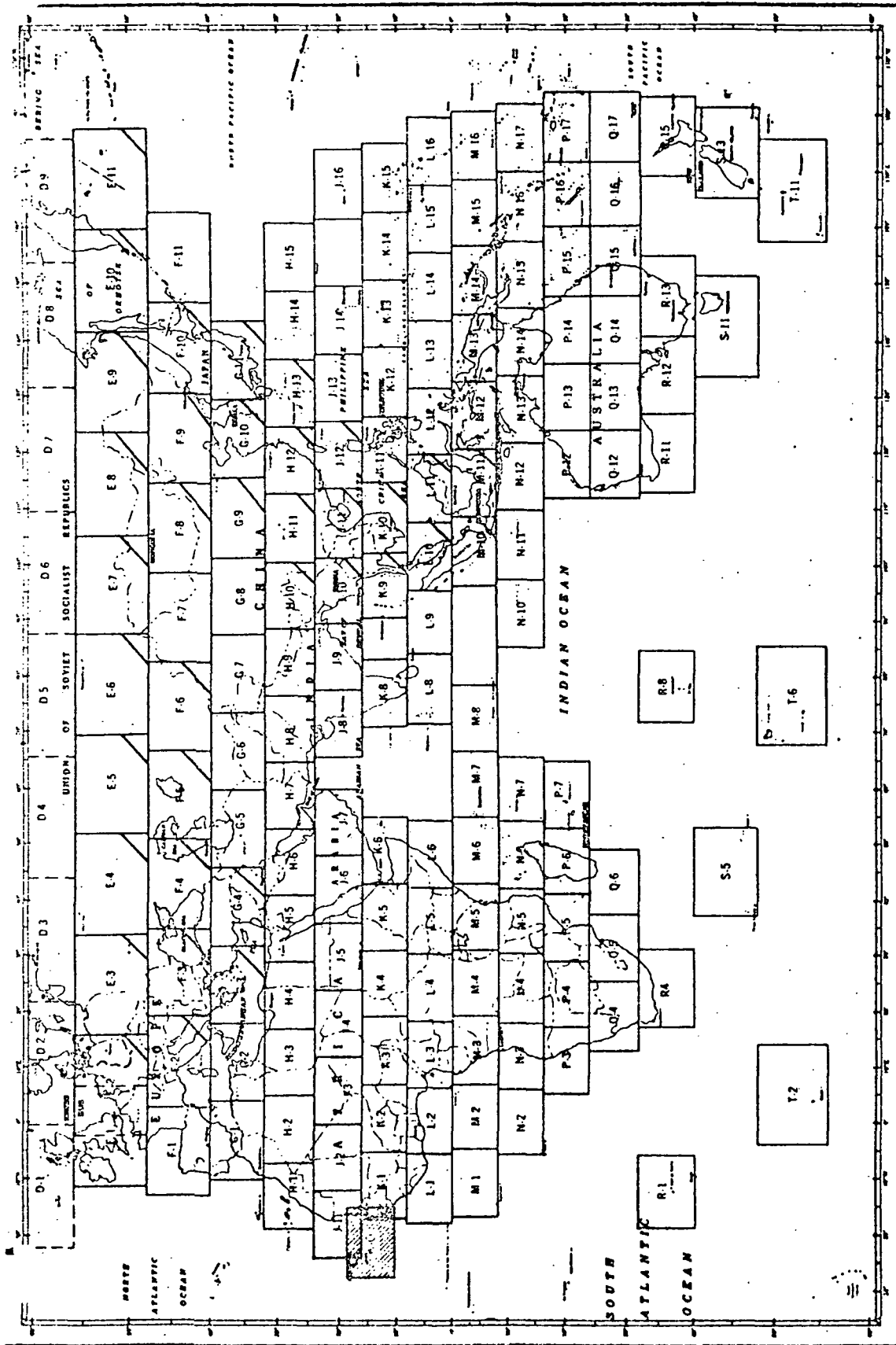
OPERATIONAL NAVIGATION CHARTS

INDEX NO. 3
Code ONC



CURRENT AS OF 1 MARCH 1962

Figure 2



CURRENT AS OF 1 MARCH 1968

Index Maps. The individual frame borders and numbers are delineated on the index maps. Where the frames overlap considerably, the frame numbers and borders are grouped together.

b. Cataloguing

The salient features of the photographic data were recorded in a tabular form as reproduced in Appendix A. A brief discussion follows of how the information of the various columns of the catalogue was obtained.

Frame Number

The frame number is the number assigned to each frame by the NASA Photo Technology Laboratory, MSC, Houston. The prefix is recorded only once at the top of each page.

The SO-65 multispectral photographic experiment equipment consisted of four cameras, each with its own film, filter combination, exposure, shutter speed, and focus (see Figure 3). The four magazines are listed in the catalogue as one, based upon the simultaneous exposure of the four films, (see figure 4). The coordinates for each of the other film/filter combinations will vary slightly.

Because of the difference in the thickness of the film base of the color infrared, black and white infrared and the black and white 3400 Panatomic-X films, the number of frames per magazine varied. A notation is made in the catalogue at the end of each film type.

SO-65 EXPERIMENT CAMERA CONFIGURATION ON THE HATCH WINDOW

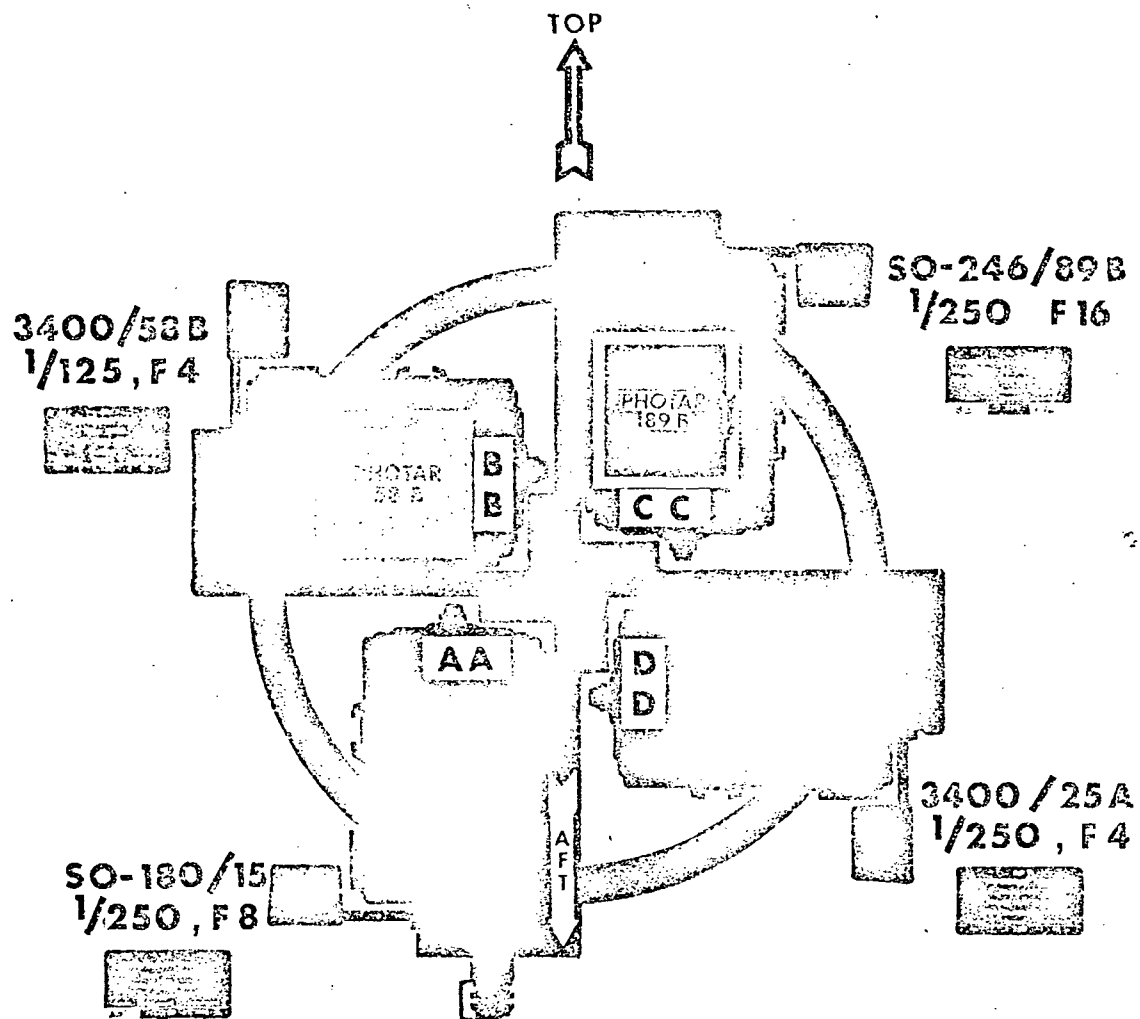


Figure 3

APOLLO 9 PHOTOGRAPHS

HANDHELD

Magazine

No. Letter	Frame Numbers	Film	Filter	Film/Filter Transmittance Response
19 A	2909-3034	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
20 E	3053-3177	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
21 B	3178-3322	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
22 C	3324-3474	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
23 D	3475-3619	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
24 F	3620-3681	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers
25 G	3682-3695	SO-368 Ektachrome	Haze	0.460 - 0.710 micrometers

SO-65 MULTISPECTRAL

26 A	3696A-3834A	SO-180 Ekta. Infrared Photar 15	0.510 - 0.890 micrometers
26 B	3696B-3854B	3400 Panatomic-X Photar 58B	0.470 - 0.610 micrometers
26 C	3696C-3823C	SO-246 B/W Infrared Photar 89B	0.680 - 0.890 micrometers
26 D	3696D-3854D	3400 Panatomic-X Photar 25A	0.590 - 0.715 micrometers

Data taken from Eastman Kodak film and filter data books.

Figure 4

Date

The date represents the day the photograph was taken, with reference to Cape Kennedy time.

Principal Point

The principal point was located by plotting the center point of the frame on a base map. The coordinates of the principal points of some photographs are approximate because of insufficient base map detail, cloud cover or poor imagery. For those photographs where the coordinates of the principal point could not be plotted, the nadir point of the camera is recorded in the principal point column. The nadir point could only be recorded if the flight crew logs and telemetry data could be correlated with that particular frame.

Percent Overlap

Percent of overlap, for stereoscopic viewing, was obtained using a grid with the image area divided into ten equal portions. The grid, when placed on each succeeding frame, was used to make a visual estimation of the percent of overlapping photographic coverage from the preceeding frame of photography.

Image Evaluation

The image evaluation column contains a qualitative ranking of the relative exposure quality of the photograph. Three terms are used: light, normal, and dark representing over-exposure, proper exposure, and under-exposure. The photographic content requirements

of users of the photographs will vary, e. g. meteorologists want the clouds enhanced, agriculturalists want the ground enhanced. When ordering photographs, the user should take into account the condition of the original image and specify in detail his requirements so that the reproduction can be enhanced to meet those requirements.

Sun Elevation

The column pertaining to Sun elevation lists by frame the degree of sun elevation at the time of exposure.

GMT

The GMT (Greenwich Mean Time) column contains the GMT for the approximate spacecraft nadir position at the instant of each exposure, expressed in hours and minutes.

Altitude

The altitude column refers to the spacecraft altitude in nautical miles. The information for this column was obtained from the predicted mission trajectory data furnished by the Mission Planning and Analysis Division, MSC. The altitude recorded in the catalogue for each frame is only an approximation, since the camera shutter was not electronically connected to the spacecraft computer.

ONC/WAC

The particular ONC or WAC base map that was used to plot the principal point is recorded in the ONC/WAC column.

Percent Cloud Cover

The percent cloud cover was estimated by overlaying each photograph with a clear film grid which subdivides the image area into 100 squares. A visual estimation was then made as to the percent of the image area covered by clouds.

Viewing Mode

All photographs of the SO-65 experiment were exposed under the mission constraint requiring no more than a $\pm 5^\circ$ angle off nadir, with the exception of the first two frames which are limb shots. The handheld photographs were constrained by a $\pm 15^\circ$ off nadir viewing angle. Expectations occurred as requested by principal investigators. The viewing mode column denotes which frames were taken in the near vertical or oblique mode of operation.

Descriptions

The descriptions of the individual frames are presented in brief form using the current list of scientific discipline categories for the Earth Resource Program. These brief descriptions are included to aid the photographic analyst in his search for a specific discipline occurrence within each frame. In the event a given discipline does not appear to be contained within the frame limits, that discipline category was excluded from the frame description column.

The descriptions for each frame are short, general statements. They are based upon visual inspection of the 70mm film positive with the aid of magnification devices. Only those discipline aspects which were most apparent to the evaluator were described. No attempt was made to perform a detailed analysis of any discipline. The location of the desired disciplines, within the frame, has been denoted only geographically and not by coordinates.

The closely related characteristics of Geography to Cartography and Geology to Hydrology, make it most convenient to combine them into one description. The other disciplines were Agriculture, Forestry, Meteorology and Oceanography.

Photographs of cloud formations which could be correlated to orbit and regional location have been recorded in the description column. It should be remembered that these correlations are approximate since the camera shutter was not electronically connected to the spacecraft telemetry system.

2. Spacecraft Photographs, 16mm

During the Apollo 9 Mission, the astronaut crew exposed eleven magazines of 16mm color movie film over selected targets of opportunity. Much of the photography was highly cloud covered and oblique in nature.

The photographic strips contain imagery of possible value to the earth resource scientific community and the spacecraft engineering and operational groups.

type of film/filter combinations at different altitudes. The user can correlate and compare the images for details of resolution and tonal similarities. Ground truth displays can be studied, e. g. standard color panels and bar targets, as well as comparison of multi-altitude photographs for forest or agricultural identification and yields analyses.

Aircraft underflights with several film/filter combinations, film sizes, and camera types were flown during the Apollo 9 spacecraft mission. The photographs are tabulated in groups according to locality and film/filter combination.

a. Plotting

The aircraft photographs are plotted on 1:250,000 scale Army Map Service topographic maps and 1:62,500 scale U. S. Geological Survey topographic maps where the complexity of the plotting detail require a larger scale base map. The photographic index plots on the topographic maps are reproduced in Appendix C.

b. Cataloguing

The catalogue of the aircraft underflights is tabulated in Appendix C and each column is briefly described as to how the data was used below.

Frame Number

The photographs are arranged numerically by the frame number inscribed by the processing laboratory. The frame numbers on the SO-180 infrared color film for the Willcox Dry Lake and Cochise area are numbered for cataloguing by the Mapping Sciences Laboratory.

Altitude

The altitude data recorded is the height in feet of the aircraft

above the terrain, rather than the altitude above mean sea level.

Scale

The scale recorded is derived from the photo distance divided by the ground distance.

1:250,000 Map Number

This column is the map number of the Army Map Service 1:250,000 scale topographic series on which many of the flight lines are plotted and reproduced in Appendix C.

Other Map Sources Used

This column is the map number of the U. S. Geological Survey 1:62,500 scale topographic map used for plotting the more complex aircraft coverage. Photographs plotted on these base maps are reproduced in Appendix C. Where necessary, current local service station highway maps were used to help identify image detail.

Description/Comments

This column records a brief location identification of the photographs and/or flight lines to aid the user in locating the aircraft photography.

While every effort has been made to plot the photographs and record the data accurately, errors may have occurred. Correlation of the coverage plots with the principal or nadir points and the descriptions should give the user sufficient accuracy for screening purposes. Users are invited to indicate errors, so that they may be corrected.

c. Conclusions

The information contained in this report should help the scientist in selecting the frames best suited to his needs, and provide him with the basic data about those selected frames to aid in the analysis of photography.

It is expected that there will be a continued demand for Apollo photography for scientific analysis; and to those scientists, the data and information in this report should be invaluable in the initial stages of their investigations.

APPENDIX

A

APOLLO 9 70MM SPACECRAFT PHOTOGRAPHIC

~~CATALOGUE AND INDEX MAPS~~

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
AS9-19	March											
2909												LM Spacecraft - top view from Command Module
2910												LM Spacecraft - top view from Command Module
2911												LM Spacecraft - top view from Command Module
2912												LM Spacecraft - top view from Command Module
2913												LM Spacecraft - top view from Command Module
2914												LM Spacecraft - top view from Command Module
2915												LM Spacecraft - top view from Command Module
2916												LM Spacecraft - top view from Command Module
2917												LM Spacecraft - top view from Command Module
2918												LM Spacecraft - top view from Command Module
2919												LM Spacecraft - top view from Command Module
2920												LM Spacecraft - top view from Command Module
2921												LM Spacecraft - top view from Command Module
2922												LM Spacecraft - top view from Command Module
2923												LM Spacecraft - top view from Command Module
2924												LM Spacecraft - top view from Command Module
2925												LM Spacecraft - top view from Command Module
2926												LM Spacecraft - top view from Command Module
2927												LM Spacecraft - top view from Command Module
2928												LM Spacecraft - top view from Command Module
2929												LM Spacecraft ascending from booster on docking rendezvous

* NADIR POINT OF CAMERA

A-1

MAGAZINE A
AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
2930	March											LM Spacecraft ascending from booster on docking rendezvous
2931												LM Spacecraft ascending from booster on docking rendezvous
2932												LM Spacecraft ascending from booster on docking rendezvous
2933												LM Spacecraft ascending from booster on docking rendezvous
2934												View of Service Module LM Adapter from Command Module
2935												View of Service Module LM Adapter from Command Module
2936												View of Service Module LM Adapter from Command Module
2937												View of Service Module LM Adapter from Command Module
2938												View of Service Module LM Adapter from Command Module
2939												View of Service Module LM Adapter from Command Module
2940												View of Service Module LM Adapter from Command Module
2941												LM Spacecraft and Service Module LM Adapter
2942												LM Spacecraft and Service Module LM Adapter
2943												LM Spacecraft and Service Module LM Adapter
2944												LM Spacecraft and Service Module LM Adapter
2945												Service Module LM Adapter (S.L.A.) over eastern Pacific
2946												Service Module LM Adapter (S.L.A.) over eastern Pacific

* NADIR POINT OF CAMERA

A-2

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A
AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						No.	No.			
2947	Mar												Service Module LM Adaptor (S.L.A) over eastern Pacific.
2948	9	32 55N*	119 58W		Normal	41.5	1801	106	G-18		25	Obl.	GEOGRAPHY/CARTOGRAPHY: Oblique view of southern California coast, Channel Islands, S.L.A., Pacific Ocean. GEOLOGY/HYDROLOGY: Complex mountain range. METEOROLOGY: Cumulus humilis, cumulus congestus.
2949	9	31 57N*	119 50W		Normal	41.5	1801	106	H-22 H-23		17	Obl.	GEOGRAPHY/CARTOGRAPHY: Oblique view of southern California, Channel Islands, Salton Sea, Imperial Valley, Los Angeles Metropolitan Area, and S.L.A. GEOLOGY/HYDROLOGY: Complex mountain range. METEOROLOGY: Cumulus humilis, cumulus congestus. OCEANOGRAPHY: Pacific Ocean, water color variation in nearshore zone.
2950	9	33 13N*	117 30W		Normal	45	1802	105	G-19 H-23		13	Obl.	GEOGRAPHY/CARTOGRAPHY: Oblique view of southern California, Arizona, and northern Mexico, Salton Sea, Imperial Valley, Colorado River Delta, and S.L.A. GEOLOGY/HYDROLOGY: Complex mountains and alluvial deposits. METEOROLOGY: Cumulus humilis, cumulus congestus. OCEANOGRAPHY: Pacific Ocean, water color variation in nearshore zone.
2951	9	33 26N*	115 15W		Normal	45	1802	105	G-18		2	Obl.	GEOGRAPHY/CARTOGRAPHY: Oblique view of southwestern United States, and S.L.A. METEOROLOGY: Cirro-cumulus.
2952													LM Adaptor section and booster
2953													LM Adaptor section and booster
2954													LM Adaptor section and booster
2955													Point of light source from E.V.A. antenna
2956													Point of light source from E.V.A. antenna

* NADIR POINT OF CAMERA

A-3

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A

AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
	Mar											
2957												Point of light source from E.V.A. antenna
2958												IM antenna
2959												Out of focus - reflection
2960												View of IM and Gulf Coast
2961	9	30 09N	81 30W		Dark	52	1838	103	H-25	18	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Florida, Georgia, Jacksonville, Brunswick and St. Augustine, Atlantic Ocean. GEOLOGY/HYDROLOGY: Dissected coastal plain. AGRICULTURE: Scattered cultivation. FORESTRY: Mixed pine/hardwood uplands with hardwood bottomlands. METEOROLOGY: Alto-cumulus.
2962												IM antenna system
2963												Side of IM and antenna
2964												Quad - attitude engines on IM
2965												Quad - attitude engines on IM
2966												Light reflection - out of focus
2967												View through passage way from Command Module
2968												View from Command Module
2969												View from Command Module near terminator
2970												IM antennas
2971												IM antennas and quad - engines
2972												IM quad - attitude engines
2973												IM dish antenna
2974												Out of focus - reflection off dish antenna
2975												Horizon

* NADIR POINT OF CAMERA

A-4

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A
AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
	Mar											
2976												E.V.A. of IM Pilot Schweickart
2977												IM antennae and LEC system
2978												Quad - attitude engines
2979												IM spacecraft
2980												IM spacecraft
2981												E.V.A. activities of IM Pilot Schweickart
2982												E.V.A. activities of IM Pilot Schweickart
2983												E.V.A. activities of IM Pilot Schweickart
2984												E.V.A. activities of IM Pilot Schweickart
2985												E.V.A. activities of IM Pilot Schweickart
2986	9	30 10N	98 17W		Dark	53	1999	102	H-23	1	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Cities of San Antonio and Austin, Lakes Austin, Travis, Lyndon B. Johnson, and Buchanan, Canyon Reservoir, Johnson City. GEOLOGY/HYDROLOGY: Central plains of sedimentary formations. AGRICULTURE: Scattered to dense cultivation. FORESTRY: Semi-dense stands of mixed conifer and hardwood, non-commercial stands. METEOROLOGY: Cumulus humilis.
2987	9	31 31N	98 09W	80	Dark	51	1999	102	H-23	3	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Lakes Buchanan, Waco, and Whitney, Cities of Waco, and Temple, Towns of Killeen and McGregor. GEOLOGY/HYDROLOGY: Central plains. AGRICULTURE: Scattered to dense cultivation. FORESTRY: Semi dense stands of mixed forest types, generally non-commercial shrubform. METEOROLOGY: Cumulus humilis.

* NADIR POINT OF CAMERA

A-5

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A

Frame No.	Date	Principal Point		Image Evolution	Sun Elevation	GMT	Altitude n. mi.	AS 9-19		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.					ONC	WAC			
2988	Mar 9	30 49N	97 36W	Dark	51	1939	102	H-23	H-23	12	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Cities of San Antonio, Austin, Temple and Maco, Interstate Route 35, Lakes Buchanan, Travis, Austin. GEOLOGY/HYDROLOGY: Central plains. AGRICULTURE: Scattered to dense cultivation. FORESTRY: Semi-dense stands of mixed forest types mainly shrubform. METEOROLOGY: Cumulus humilis.
2989	9	28 03N	97 03W	Dark	51	1940	102	H-23 H-24 H-24	H-23	18	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Mexico, Texas Gulf Coast, Matagorda, San Antonio, Corpus Christi, Alazan and Bays Padre Island, Rio Grande Valley, Cities of Corpus Christi, Brownsville, and Matamoros. GEOLOGY/HYDROLOGY: Coastal and central plains. AGRICULTURE: Extensive cultivation in Matagorda Bay-Victoria area. FORESTRY: Generally non-commercial shrubform with coastal vegetation. METEOROLOGY: Alto-cumulus. OCEANOGRAPHY: Gulf of Mexico, directional differences of nearshore and off-shore currents indicated by sediment discharge of drainage systems.
2990	9	28 20N	97 20W	Dark	51	1940	102	H-23 H-24 J-24	H-23	20	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Mexico, Texas, Matagorda, and Corpus Christi Bays, Padre Island, Rio Grande Valley, Sierra Madre Oriental, Cities of San Antonio, Corpus Christi and Brownsville. GEOLOGY/HYDROLOGY: Coastal and central plains. AGRICULTURE: Extensive cultivation in Matagorda Bay-Victoria area. FORESTRY: Non-commercial shrubform with coastal vegetation. METEOROLOGY: Alto-cumulus. OCEANOGRAPHY: Gulf of Mexico, directional differences of nearshore and off-shore currents indicated by sediment discharge of drainage systems.

29 * NADIR POINT OF CAMERA

A-6

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A
AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
2991	Mar 9	30 20N	94 38W	40	Dark	51	1940	102	H-24	80	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Matagorda and Galveston Bays, Houston, Galveston, Victoria, and Freeport. GEOLOGY/MYECIOLOGY: Gulf Coast plains. METEOROLOGY: Alto-cumulus, cirrus spissatus. OCEANOGRAPHY: Gulf of Mexico, sediments, deposit near coastal areas.
2992	9	30 15N*	94 35W	60	Dark	51	1940	102	H-24	90	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Louisiana Gulf Coast, White Lake, Vermillion Bay. GEOLOGY/MYECIOLOGY: Coastal plain. METEOROLOGY: Nimbo-stratus, alto-cumulus, cirrus-cumulus.
2993												E.V.A. activity - out of focus
2994												E.V.A. activities of IM Pilot Schweikart
2995												E.V.A. activities of IM Pilot Schweikart
2996												E.V.A. activities of IM Pilot Schweikart
2997												E.V.A. activities of IM Pilot Schweikart
2998												E.V.A. activities of IM Pilot Schweikart
2999												E.V.A. activities of IM Pilot Schweikart
3000												E.V.A. activities of IM Pilot Schweikart
3001												E.V.A. activities of IM Pilot Schweikart
3002												IM Spacecraft
3003												IM Spacecraft
3004												IM Spacecraft
3005												IM Spacecraft

* NADIR POINT OF CAMERA

A-7

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A

AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	AS 9-19		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						WAC	ONC			
3006	Mar 9	4 20N*	50 50W	0	Dark	25	1952	102	L-28	L-28	50	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u> : South America, Brazil, French Guiana, Cape Orange, Oiepoque River. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain and deltaic flood plain. <u>FORESTRY</u> : Broadleaf evergreen forests. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus.
3007	9	0 40N	50 35W	0	Dark	25	1953	102	L-28	L-28	80	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : South America, Brazil, Amazon River Delta. <u>GEOLOGY/HYDROLOGY</u> : Deltaic flood plain region. <u>METEOROLOGY</u> : Cumulo-nimbus with anvils, cumulus congestus, cirrus fibratus.
3008	9	5 51S	35 37W	0	Dark	08	1957	104	M-28	M-28	22	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u> : South America, Brazil, Cape Sao Roque, Towns of Natal and Joao Pessoa, Atlantic Ocean. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain region. <u>AGRICULTURE</u> : Scattered field patterns. <u>FORESTRY</u> : Semi-dense to dense stands of broadleaf evergreen. <u>METEOROLOGY</u> : Cirrus fibratus.
3009	9	27 02N	114 16W	0	Normal	53	2109	102	H-22	H-22	65	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Baja California Point Eugene, Scammon Lagoon, Vizcaino Mountains, Vizcaino Desert, Pacific Ocean. <u>GEOLOGY/HYDROLOGY</u> : Complex mountains and alluvial deposits. <u>FORESTRY</u> : Desert shrubland. <u>METEOROLOGY</u> : Cirrus, cumulus humilis, strato-cumulus.
3010	9	19 07N	100 05W	0	Dark	45	2114	101	J-24	J-24	8	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Michoacan, Mexico and Guerrero Provinces, Sierra Madre del Sur, Lake Cuitzo, Town of Ciudad Hidalgo and Toluca, Gulf of Mexico. <u>GEOLOGY/HYDROLOGY</u> : Complex volcanic mountains. <u>FORESTRY</u> : Desert shrubform, numerous smoke plumes. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus.

* NADIR POINT OF CAMERA

A-8

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A
AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
✓ 3011	Mar 9	19 10N	99 35W	70	Dark	45	2114	101	J-24	4	Obl.	<u>GEOGRAPHY/CARTOGRAPHY:</u> Mexico, Mexico City, Toluca, Sierra Madre del Sur. <u>GEOLOGY/HYDROLOGY:</u> Complex volcanic mountains. <u>AGRICULTURE:</u> Range lands. <u>FORESTRY:</u> Desert shrubform, numerous smoke plumes. <u>METEOROLOGY:</u> Cumulus humilis.
✓ 3012	9	18 40N	99 00W	80	Dark	45	2114	101	J-24	6	Obl.	<u>GEOGRAPHY/CARTOGRAPHY:</u> Mexico, Mexico City, Towns of Coyoacan and Xochimilco, Sierra Madre del Sur, Gulf of Mexico, Bay of Campeche. <u>GEOLOGY/HYDROLOGY:</u> Complex volcanic mountains and coastal plain. <u>AGRICULTURE:</u> Range land. <u>FORESTRY:</u> Desert shrubform, numerous smoke plumes. <u>METEOROLOGY:</u> Cumulus humilis, alto-cumulus.
✓ 3013	9	17 58N	98 45W	80	Dark	50	2114	101	J-24	11	Obl.	<u>GEOGRAPHY/CARTOGRAPHY:</u> Mexico, Mount Popocatepetl, Puebla, Cuernavaca and Acaapulco, Gulf of Mexico, Bay of Campeche. <u>GEOLOGY/HYDROLOGY:</u> Complex volcanic mountains and coastal plain. <u>AGRICULTURE:</u> Range land. <u>FORESTRY:</u> Desert shrubform. <u>METEOROLOGY:</u> Cumulus humilis, alto-cumulus, smoke.
✓ 3014	9	17 00N	98 15W	90	Dark	50	2114	101	J-24	15	Obl.	<u>GEOGRAPHY/CARTOGRAPHY:</u> Mexico, Sierra Madre del Sur, Cuernavaca, Matamoros and Acaapulco, Mount Popocatepetl, Gulf of Mexico, Bay of Campeche. <u>GEOLOGY/HYDROLOGY:</u> Volcanic mountains and coastal plain. <u>AGRICULTURE:</u> Range land. <u>FORESTRY:</u> Desert shrubform, numerous smoke plumes. <u>METEOROLOGY:</u> Cumulus humilis, alto-cumulus.

32 * NADIR POINT OF CAMERA

A-9

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE A
AS9-19

Frame No.	Date	Principal Point		Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.								
3015	Mar 9	16 25N	97 45W	Dark	50	2114	101	J-24	17	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Sierra Madre del Sur, Mount Cerro Yucuyalua, Town of Tehuacan, Gulf of Mexico, Bay of Campeche. <u>GEOLOGY/HYDROLOGY</u> : Complex volcanic mountains and coastal plain. <u>AGRICULTURE</u> : Range land. <u>FORESTRY</u> : Desert shrubform, numerous smoke plumes. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus, alto-cumulus, smoke.
3016	9	15 44N	92 53W	Dark	48	2114	101	K-24 K-25	6	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Chiapas Province, Sierra Madre, Mar Muerto, Town of Tunala, Pacific Ocean, Gulf of Tehuantepec. <u>GEOLOGY/HYDROLOGY</u> : Complex mountains and coastal plain. <u>FORESTRY</u> : Mixed broadleaf evergreen and broadleaf deciduous forests, numerous smoke plumes. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus, smoke.
3017	9	15 23N	92 20W	Dark	41	2114	101	K-25	5	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Chiapas Province, Sierra Madre, Towns of Huixta and Tapachula, Pacific Ocean, Gulf of Tehuantepec. <u>GEOLOGY/HYDROLOGY</u> : Complex mountains and coastal plain. <u>AGRICULTURE</u> : Scattered irregular field pattern. <u>FORESTRY</u> : Mixed broadleaf evergreen and broadleaf deciduous forests, numerous smoke plumes. <u>METEOROLOGY</u> : Cumulus humilis, smoke.
3018	9	14 58N	91 12W	Dark	41	2114	101	K-25	11	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Mexico, Guatemala, Sierra Madre, Towns of Tapachula, Quezaltenango, and Mazatenango, Pacific Ocean, Gulf of Tehuantepec. <u>GEOLOGY/HYDROLOGY</u> : Complex mountains and coastal plain. <u>AGRICULTURE</u> : Scattered irregular field patterns. <u>FORESTRY</u> : Mixed broadleaf evergreen and broadleaf deciduous forests, numerous smoke plumes. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus smoke.

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HANDHELD COLOR PHOTOGRAPHS
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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3019	Mar 9	12 52N	87 45W	0	Dark	38	2116	101	K-25	3	Vert.	GEOGRAPHY/CARTOGRAPHY: El Salvador, Honduras, Nicaragua, Gulf of Fonseca, Pointa Amapala and Cosigüina, Coseguina Volcano, San Lorenzo Bay. GEOLOGY/HYDROLOGY: Volcanic and complex mountains with a narrow coastal plain. AGRICULTURE: Scattered small field patterns. FORESTRY: Mixed broadleaf evergreen and deciduous forests, coastal marsh grasses. METEOROLOGY: Cumulus humilis. OCEANOGRAPHY: Pacific Ocean, Gulf of Fonseca, salt and fresh water interface, probably incoming tide.
3020	9	11 53N	86 00W	50	Dark	35	2117	101	K-25	18	Obl.	GEOGRAPHY/CARTOGRAPHY: Nicaragua, Lakes Managua and Nicaragua, Omotepe Island, City of Managua, Towns of Masaya, Granada, and Jinotepe, Pacific Ocean, Gulf of Fonseca. GEOLOGY/HYDROLOGY: Complex plateaus, volcanoes and interior plains. AGRICULTURE: Numerous field patterns around lake. FORESTRY: Mixed broadleaf, evergreen and deciduous forests. METEOROLOGY: Cumulo-nimbus, cumulus congestus, cumulus humilis.
3021	9	11 45N	85 27W	60	Dark	35	2117	101	K-25	30	Obl.	GEOGRAPHY/CARTOGRAPHY: Nicaragua, Costa Rica, Lake Nicaragua, Omotepe Island, Towns of Granada, Masaya and Jinotepe, Pacific Ocean. GEOLOGY/HYDROLOGY: Complex plateaus, volcanoes, and interior plains. AGRICULTURE: Field patterns along water's edge. FORESTRY: Mixed broadleaf, evergreen and deciduous forests. METEOROLOGY: Cumulo-nimbus with anvil, cumulus congestus, cumulus humilis, cirrocumulus.

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HANDHELD COLOR PHOTOGRAPHS
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AS 9-19

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3022	Mar 9	11 58N	85 33W	50	Dark	35	2117	101	K-25	55	Obl.	GEOGRAPHY/CARTOGRAPHY: Nicaragua, Costa Rica, Lake Nicaragua, Cordillera de Yolaína. GEOLOGY/HYDROLOGY: Interior coastal plain. AGRICULTURE: Cultivated area near water edge. FORESTRY: Mixed broadleaf, evergreen and deciduous forests. METEOROLOGY: Cirro-cumulus, cirrus fibratus, cumulo-nimbus, cumulus congestus, cumulus humilis.
3023	9	10 38N	83 43W	0	Dark	35	2117	101	K-25	60	Obl.	GEOGRAPHY/CARTOGRAPHY: Costa Rica, Panama, Caribbean Sea, Village of Sixaola. GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Cumulo-nimbus, cumulus congestus, cumulus humilis, cirrus fibratus. OCEANOGRAPHY: Caribbean Sea, some water tonal variations within the nearshore zone.
3024	9	2 30N	71 00W	0	Normal	10	2122	106		100	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Brazil. METEOROLOGY: Cumulo-nimbus, cumulus congestus, cirro-stratus.
3025	9	2 10S	65 00W	0	Normal	10	2125	106		100	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Brazil. METEOROLOGY: Cumulo-nimbus, cirro-stratus, alto-cumulus.
3026	9	4 40S	61 51W	0	Normal	10	2126	106		100	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Brazil. METEOROLOGY: Cumulo-nimbus, cumulus congestus, cirro-stratus, alto-cumulus.
3027	9	11 10S	52 10W	0	Normal	10	2128	106		30	Obl.	GEOGRAPHY/CARTOGRAPHY: South America. (Orbit 95) METEOROLOGY: Cumulo-nimbus, cumulus congestus, cirro-stratus, cirrus fibratus, alto-cumulus.
3028	9	15 00S	46 00W	0	Dark	10	2130	106		100	Obl.	GEOGRAPHY/CARTOGRAPHY: South America. (Orbit 95) METEOROLOGY: Cumulo-nimbus, cirrus fibratus, alto-cumulus.

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Frame No.	Date	Principal Point		Image Evaluation	Sun Elevation	GMT	Altitude ft. m.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.								
3029	Mar 9	0 07S	91 34W	Dark	21	2251	102	953-S	11	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: Galapagos Islands, Fernandina, Isabela, San Salvador, Santa Cruz, and Santa Maria Islands. <u>GEOLOGY/HYDROLOGY</u>: Volcanic island chain. <u>FORESTRY</u>: Dense broadleaf evergreen in interior. <u>METEOROLOGY</u>: Cumulo-nimbus, cumulus congestus, stratus. <u>OCEANOGRAPHY</u>: Pacific Ocean, some color differences denoting possible salinity, current or depth change.
3030	9	0 18S	91 03W	Dark	21	2251	102	953-S	13	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: Galapagos Island, Fernandina, Isabela, San Salvador, Santa Cruz, and Santa Maria Islands. <u>GEOLOGY/HYDROLOGY</u>: Volcanic island chain. <u>FORESTRY</u>: Dense broadleaf evergreen forests inland. <u>METEOROLOGY</u>: Cumulo-nimbus, cumulus congestus, stratus. <u>OCEANOGRAPHY</u>: Pacific Ocean, some color differences denoting possible salinity, current or depth change.
3031	9	0 22S	90 57W	Dark	21	2251	102	953-S	13	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: Galapagos Island, Fernandina, Isabela, San Salvador, Santa Cruz and Santa Maria Islands. <u>GEOLOGY/HYDROLOGY</u>: Volcanic island chain. <u>FORESTRY</u>: Dense broadleaf evergreen forests inland. <u>METEOROLOGY</u>: Cumulo-nimbus, cumulus congestus, stratus. <u>OCEANOGRAPHY</u>: Pacific Ocean, some color changes denoting possible salinity, current or depth differences.

* NADIR POINT OF CAMERA

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Name No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3032	Mar 9	0 26S	90 50W	100	Dark	21	2251	102	953-S	16	Vert.	GEOGRAPHY/CARTOGRAPHY: Galapagos Islands, Fernandina, Isabela, San Salvador, Santa Cruz, and Santa Maria Islands. GEOLOGY/HYDROLOGY: Volcanic island chain. FORESTRY: Dense broadleaf evergreen forests inland. METEOROLOGY: Cumulo-nimbus, cumulus congestus, OCEANOGRAPHY: Pacific Ocean, some color changes denoting possible salinity, current or depth differences.
3033												Dark photograph of eastern Sahara
3034	10	26 10N	2 40E	0	Normal	50	1322	99	H-2	0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Algeria, Abnact and Ahaggar Mountains. GEOLOGY/HYDROLOGY: Complex folded mountains with intervening playas.
3035	10	23 00N	15 05E	-	Normal	50	1324	98	J-4	0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Niger, Chad, Libya, Jabel Bin Ghunaymah, Sarir Tibasti, Nangueni Plateau. GEOLOGY/HYDROLOGY: Complex elevated plateau highly fractured. METEOROLOGY: Cirrus uncinus
3036	10	23 00N	15 00E	90	Normal	50	1324	98	J-4	0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Niger, Chad, Libya, Jabel Bin Ghunaymah, Sarir Tibasti, Mangueni Plateau. GEOLOGY/HYDROLOGY: Complex and highly fractured plateau. FORESTRY: Scattered desert shrubform. METEOROLOGY: Cirrus uncinus.
3037	10	24 05N*	3 15E	0	Normal	54	1325	98	-	95	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Libya Desert. GEOLOGY/HYDROLOGY: Erg plains. METEOROLOGY: Cirrus spissatus, alto-cumulus.
3038	10	24 00N*	3 35E	70	Normal	55	1325	98	-	85	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Libya Desert. GEOLOGY/HYDROLOGY: Erg plains. METEOROLOGY: Cirrus spissatus, alto-cumulus.
3039	10	23 59N*	3 55E	70	Normal	55	1326	98	-	60	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Libya Desert. GEOLOGY/HYDROLOGY: Erg plains. METEOROLOGY: Cirrus spissatus, alto-cumulus.

* NADIR POINT OF CAMERA

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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3040	Mar 10	32 00N*	89 50W	-	Dark	55	1741	101	H-24	93	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Louisiana, Mississippi, Atchafalaya Bay, Lake Pontchartrain and Borgne, City of New Orleans, Gulf of Mexico. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain. <u>METEOROLOGY</u> : Cirro-stratus, alto-cumulus, cumulus congestus.
3041	10	32 00N*	89 48W	90	Dark	55	1741	101	H-24	93	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Louisiana, Atchafalaya Bay, Six Mile Lake, Morgan City, New Orleans. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain. <u>METEOROLOGY</u> : Cirro-stratus, alto-cumulus, cumulus congestus.
3042	10	32 00N*	89 46W	90	Dark	56	1741	101	H-24	93	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Louisiana, Atchafalaya Bay, Point au Fer, Morgan City. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain. <u>METEOROLOGY</u> : Cirro-stratus, alto-cumulus, cumulus congestus. <u>OCEANOGRAPHY</u> : Gulf of Mexico, sun glint, possible swell patterns.
3043	10	29 06N	89 29W	0	Dark	56	1741	101	H-24	75	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Louisiana, Mississippi River Delta, Lake Borgne, Villages of Empire and Buras, City of New Orleans. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain and deltaic flood plain. <u>FORESTRY</u> : Mixed pine/hardwood forests inland with coastal marsh vegetation. <u>METEOROLOGY</u> : Cirrus, cirro-stratus, alto-cumulus. <u>OCEANOGRAPHY</u> : Gulf of Mexico, sun glint, possible swell patterns visible.

* NADIR POINT OF CAMERA

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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3044	Mar 10	32 40N*	88 30W	-	Dark	56	1741	101	H-24	73	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Louisiana, Mississippi, Mississippi River Delta, Mississippi Sound, Cat, Ship and Horn Islands, Biloxi and Gulfport. GEOLOGY/HYDROLOGY: Sand bars along coastal plain region. FORESTRY: Coastal marshland vegetation. METEOROLOGY: Cirrus, cirro-stratus, alto-cumulus. OCEANOGRAPHY: Gulf of Mexico, sunlint.
3045	10	32 35N*	88 20W	30	Dark	56	1741	101	H-24	90	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Louisiana, Mississippi, Mississippi River Delta, Ship Island. GEOLOGY/HYDROLOGY: Coastal plain and deltaic flood plain. FORESTRY: Coastal marshland vegetation. METEOROLOGY: Cirrus, cirro-stratus, alto-stratus. OCEANOGRAPHY: Gulf of Mexico, sunlint.
3046	10	29 43N	84 54W	0	Dark	57	1742	101	H-24 H-25	16	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Florida, Cape San Blas, St. Joseph Bay, Panama City and Tallahassee. GEOLOGY/HYDROLOGY: Coastal plain region. AGRICULTURE: Extensive cultivation, various field pattern configurations. FORESTRY: Coastal grasses with mixed pine/hardwood bottomlands. METEOROLOGY: Cirrus fibratus, alto-cumulus, cirro-stratus. OCEANOGRAPHY: Gulf of Mexico, sediments in suspension in nearshore areas, possible barrier island being formed.

* NADIR POINT OF CAMERA

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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3047	Mar 10	27 45N	80 26W	0	Dark	57	1742	101	H-25	10	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Florida, Cape Kennedy, Lake George, St. Johns River, Cities of Jacksonville, Daytona Beach, Orlando, Sanford, Cocoa, and Melbourne. GEOLOGY/HYDROLOGY: Coastal plain region. AGRICULTURE: Extensive cultivation, congested field patterns. FORESTRY: Mixed pine/hardwood with pure conifer stands. METEOROLOGY: Alto-cumulus, cirrus. OCEANOGRAPHY: Atlantic Ocean, sunlight.
3048	10	24 35N	81 20W	0	Dark	57	1742	101	H-25	16	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, view of Florida looking from Gainesville south, Lake Okechobee, Tampa, St. Petersburg, Lakeland, Sarasota, and Ft. Myer. GEOLOGY/HYDROLOGY: Coastal plain region. AGRICULTURE: Extensive cultivation with heavy congestion of field patterns. FORESTRY: Mixed pine/hardwood with some pure conifer forests. METEOROLOGY: Alto-cumulus, cirrus.
3049	10	30 18N	81 16W	0	Dark	57	1743	101	H-25	18	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Florida, and Georgia, St. Johns River, Cities of Jacksonville, Brunswick, and Daytona Beach. GEOLOGY/HYDROLOGY: Coastal plain region. AGRICULTURE: Extensive cultivation, congested field patterns. FORESTRY: Mixed pine/hardwood. METEOROLOGY: Alto-cumulus. OCEANOGRAPHY: Atlantic Ocean, sediments in suspension in nearshore zone, dark water plume extending to offshore zone.
3050	10	20 43N	11 08W	0	Normal	54	1459	98	J-1 J-2	0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Mauritania, Guelb er Richat Dome, Dhar Adrar Mountains, Ouargane Desert. GEOLOGY/HYDROLOGY: Richat dome structures, and complex plateau region. FORESTRY: Scattered desert shrubform.

* NADIR POINT OF CAMERA

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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.										
3051	Mar 11	19 47H	13 04W	0	Normal	54	1459	98	J-1	0	Obl.		GEOGRAPHY/CARTOGRAPHY: Africa, Mauritania, Dhar Adrar, Akchar Desert, Village of Atsr. GEOLOGY/HYDROLOGY: Complex fractured sedimentary plateau region. FORESTRY: Scattered desert shrubform.
3052	11	15 44N	03 28W	0	Dark	48	1501	100	K-2	0	Obl.		GEOGRAPHY/CARTOGRAPHY: Africa, Mali, Niger River, Timbuktu, Goundam and Sarafore, Lakes Niakaye, Do, Garou, and Aougoungou. GEOLOGY/HYDROLOGY: Flood plain and stabilized soil dunes with intervening drainage. FORESTRY: Scattered desert shrubform.

* NADIR POINT OF CAMERA

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Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
	Mar											
3053												Command Module, space walk
3054												Command Module, space walk
3055												Command Module, space walk
3056												Command Module, space walk
3057												Command Module, space walk
3058												Retro rockets on Lunar Module
3059												Leg of Lunar Module
3060												Command Module, space walk
3061												Command Module, space walk
3062												Lunar Module
3063												Leg of Lunar Module
3064												Command Module, space walk
3065												Command Module, space walk
3066												Leg of lunar module
3067												Lunar Module
3068												Retro rockets on Lunar Module
3069												Lunar Module, Command Module, space walk
3070												Lunar Module, Command Module, space walk
3071												Lunar Module, Command Module, space walk
3072												Space walk
3073												Space walk
3074												Space walk
3075												Space walk

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* NADIR POINT OF CAMERA

MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
	Mar											
3076												Space walk
3077												Space walk, Command Module
3078												Space walk, Command Module
3079												Space walk, Command Module
3080												Space walk, Command Module
3081												Space walk, Command Module
3082												Command Module window
3083												Command Module, space walk
3084												Command Module, space walk
3085												Lunar Module, space walk
3086												Lunar Module, space walk
3087												Lunar Module, space walk
3088												Lunar Module, space walk
3089												Lunar Module, space walk
3090												Lunar Module, space walk
3091												Lunar Module, space walk
3092												Lunar Module, space walk
3093												Lunar Module, space walk
3094												Lunar Module, space walk
3095												Lunar Module, space walk
3096												Lunar Module, space walk
3097												Lunar Module, space walk
3098												Lunar Module, space walk

* NADIR POINT OF CAMERA

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HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point Latitude deg. min.	Longitude deg. min.	Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
3099	Mar											Lunar Module, space walk
3100												Lunar Module, space walk
3101												Lunar Module, space walk
3102												Spacecraft interior
3103												Inside Command Module
3104												Inside Command Module
3105												Limb shot, clouds
3106	12	21 20N	16 16E	90	Normal	60	1210	98	J-4	2	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Chad, Tibesti Mountains, Mount Pic Tonside. GEOLOGY/HYDROLOGY: Volcanic mountains and complex hills with an adjacent Hamada region. FORESTRY: Scattered shrubform. METEOROLOGY: Cumulus humilis.
3107	12	21 03N	17 08E	90	Normal	60	1210	98	J-4	5	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Chad, Tibesti Mountains, Mount Pic Tonside, Village of Bardai. GEOLOGY/HYDROLOGY: Volcanic mountains and complex hills. FORESTRY: Scattered shrubform. METEOROLOGY: Cumulus humilis.
3108	12	21 00N	17 30E	90	Normal	60	1211	98	J-4	10	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Chad, Tibesti Mountains, Mount Tieroko, Village of Jebbi Boul. GEOLOGY/HYDROLOGY: Volcanic and complex mountains. FORESTRY: Scattered shrubform. METEOROLOGY: Cirro-cumulus, cumulus humilis.
3109	12	21	18 05E	90	Normal	60	1211	99	J-4	15	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Chad, Tibesti Mountains, Mount Tieroko. GEOLOGY/HYDROLOGY: Volcanic and complex mountains. FORESTRY: Scattered shrubform. METEOROLOGY: Cirro-cumulus, cumulus humilis.

* NADIR POINT OF CAMERA

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HANDHELD COLOR PHOTOGRAPHS
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AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						WAC	No.			
3110	Mar 12	20 47N	18 54E	80	Normal	60	1211	99	J-4		25	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Chad, Tibesti Mountains. GEOLOGY/HYDROLOGY: Volcanic hills and complex mountains. FORESTRY: Scattered shrubform. METEOROLOGY: Cirro-cumulus, cumulus humilis.
3111	12	15 00N	32 20E	0	Normal	55	1214	102	K-5		10	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Sudan, White Nile River, Blue Nile River, City of Khartoum, Towns of Ed Ducim and Wed Medani, White Nile Dam. GEOLOGY/HYDROLOGY: Erg plains and adjacent Hamada Plateau region. AGRICULTURE: Extensive irrigated cultivation between Blue and White Niles. FORESTRY: Scattered to dense broadleaf shrubform. METEOROLOGY: Cirro-cumulus.
3112	12	08 45N	36 35E	20	Dark	50	1216	108	L-5,		30	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Ethiopia, Town of Jimma. GEOLOGY/HYDROLOGY: Complex mountain region. AGRICULTURE: Grazing lands. FORESTRY: Savanna grasslands and deciduous shrubform. METEOROLOGY: Cumulus humilis, cumulus congestus, cumulo-nimbus, thunderstorm build-up over mountain area.
3113	12	08 28N	37 15E	20	Dark	50	1216	108	L-5, K-5		50	Vert.	GEOGRAPHY/CARTOGRAPHY: Africa, Ethiopia, Omo River, Village of Abalti. GEOLOGY/HYDROLOGY: Dissected mountain region. AGRICULTURE: Grazing lands. FORESTRY: Savanna grasslands with scattered deciduous shrubform. METEOROLOGY: Cumulus humilis, cumulus congestus, cumulo-nimbus, thunderstorm build-up over mountain area, anvil-shaped tops are visible.

* NADIR POINT OF CAMERA

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HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.										
3114	Mar 12	08 05N	37 50E	20	Dark	50	1216	108	L-5 K-5		40	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Africa, Ethiopia, City of Husecina. <u>GEOLOGY/HYDROLOGY</u> : Dissected mountain region adjacent to the rift zone. <u>AGRICULTURE</u> : Grazing lands. <u>FORESTRY</u> : Savanna grass, with deciduous shrubform. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus, cumulo-nimbus, with anvil.
3115	12	07 50N	38 20E	20	Dark	50	1217	108	L-5 K-5		35	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Africa, Ethiopia, Lakes T'wai, Langana, Abiyata, Shala, Mt. Cuarsge, Area is south of city of Addis Ababa. <u>GEOLOGY/HYDROLOGY</u> : Fractured rift valley zone and complex elevated plateau region. <u>AGRICULTURE</u> : Grazing lands. <u>FORESTRY</u> : Savanna grass, with deciduous shrubform. <u>METEOROLOGY</u> : Cumulus humilis, cumulus congestus, cumulo-nimbus with anvil, line-squall cloud also visible.
3116	12	02 50N	47 50E	0	Normal	45	1219	115	L-6		20	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Africa, Somali Republic, City of Mogadiscio, Seeboli River, Arabian Sea. <u>GEOLOGY/HYDROLOGY</u> : Sedimentary plateau and dry lake region. <u>FORESTRY</u> : Savanna grasslands. <u>METEOROLOGY</u> : Cirrus uncinus, cumulus humilis.
3117	12	08 00N	49 53E	0	Normal	45	1219	115	K-6 L-6		5	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Africa, Somali Republic Looking northeastward up the coast toward the Di Hafun Peninsula, Arabian Sea. <u>GEOLOGY/HYDROLOGY</u> : Sedimentary plateau and coastal plain with dry salt lakes adjacent to the coast. <u>FORESTRY</u> : Savanna grasslands. <u>METEOROLOGY</u> : Cirro-cumulus.

* NADIR POINT OF CAMERA

A-23

HANDHELD COLOR PHOTOGRAPHS

MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						No.	No.			
3118	Mar 12	38 40N	74 00W	85	Normal	22	1323	140	G-21		70	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, view looking northeast along coast from Elizabeth, North Carolina to Long Island, New York. Chesapeake Bay, Delmarva Peninsula, Delaware Bay. GEOLOGY/HYDROLOGY: Coastal plain region. METEOROLOGY: Alto-cumulus, strato-cumulus, snow cover in Delaware, portions of New Jersey and Pennsylvania.
3119	12	38 00N	74 00W	85	Normal	22	1324	139	G-21		60	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, view looking north along coast from Cape Hatteras, North Carolina to Pennsylvania, Chesapeake Bay, Delmarva Peninsula, New Jersey, Capes Charles and Henry. GEOLOGY/HYDROLOGY: Coastal plain with consequent drainage. FORESTRY: Scattered forests of pine/hardwood. METEOROLOGY: Alto-cumulus, strato-cumulus, snow cover in Delaware, portions of New Jersey, and Pennsylvania.
3120	12	29 11N	118 18W	90	Dark	20	1451	153	H-22		95	Vert.	GEOGRAPHY/CARTOGRAPHY: Guadalupe Island, North Point. METEOROLOGY: Alto-cumulus undulatus, Karman cloud vortices.
3121	12	29 14N	118 02W	90	Dark	20	1451	153	H-22		95	Vert.	GEOGRAPHY/CARTOGRAPHY: Guadalupe Island, North Point. METEOROLOGY: Alto-cumulus undulatus, Karman cloud vortices.
3122	12	36 00N	109 00W	90	Normal	20	1454	138	G-19		5	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, Texas, Colorado, Rio Grande and Pecos Rivers, southern Rocky Mountains, Alamogordo Reservoir, Cities of Albuquerque and Santa Fe. GEOLOGY/HYDROLOGY: Basin and Range Province, Central Plains, and complex igneous mountain range. AGRICULTURE: Field patterns evident east of Pecos River. FORESTRY: Desert, shrubform with some needle-leaf at higher elevations. METEOROLOGY: Extensive snow cover in mountain and plateau areas, some strato-cumulus northwest of Santa Fe.

* NADIR POINT OF CAMERA

A-24

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3123	Mar 12	36 00N	107 00W	90	Normal	20	1455	138	G-19	5	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, Texas, Colorado, Pecos and Rio Grande Rivers, southern Rocky Mountains, Cities of Roswell and Santa Fe. GEOLOGY/HYDROLOGY: Basin and Range Provinces, Central Plains, and complex igneous mountain range. AGRICULTURE: Extensive cultivation east of Roswell, New Mexico. FORESTRY: Desert shrubform with some needle-leaf at higher elevations. METEOROLOGY: Extensive snow cover in mountain and plateau areas, some strato-cumulus north-west of Santa Fe.
3124	12	33 12N	79 23W	0	Normal	40	1500	117	G-21	0	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, South Carolina, North Carolina, Lakes Moultrie, and Marion, Capes Fear and Romain, Cities of Charleston and Myrtle Beach. GEOLOGY/HYDROLOGY: Sedimentary coastal plain with consequent dendritic drainage. AGRICULTURE: Extensive and highly concentrated cultivation. FORESTRY: Mixed pine/hardwood forests, heavy concentration of hardwoods in river bottoms, some swamps. OCEANOGRAPHY: Atlantic Ocean, sun glint areas show swell patterns, longshore currents indicated by sediments from streams.
3125	12	36 55N	77 15W	90	Normal	40	1500	117	G-21	30	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Virginia, Maryland, Delaware, New Jersey, Capes May, Henlopen, Henry and Charles, Cities of Norfolk, Richmond, and Washington D.C., Chesapeake Bay. GEOLOGY/HYDROLOGY: Sedimentary coastal plain with consequent dendritic drainage. AGRICULTURE: Extensive and highly concentrated cultivation field patterns irregular in shape. FORESTRY: Mixed pine/hardwood, hardwood river bottoms. METEOROLOGY: Alto-cumulus, strato-cumulus, snow cover in Delaware and portions of New Jersey and Pennsylvania. OCEANOGRAPHY: Atlantic Ocean, some sediment patterns visible

* NADIR POINT OF CAMERA

A-25

HANDHELD COLOR PHOTOGRAPHS

MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3126	Mar 12	36 55N	76 40W	90	Normal	40	1500	116	G-21	25	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: United States, North Carolina, Virginia, Maryland, Delaware, New Jersey, Capes May, Henlopen, Henry and Charles, Chesapeake Bay, Cities of Norfolk, Richmond, and Washington, D. C. <u>GEOLOGY/HYDROLOGY</u>: Sedimentary coastal plain region. <u>AGRICULTURE</u>: Extensive cultivation, irregular field patterns. <u>FORESTRY</u>: Mixed pine/hardwood, hardwood bottomland. <u>METEOROLOGY</u>: Alto-cumulus, strato-cumulus, snow cover in Delaware and portions of New Jersey and Pennsylvania. <u>OCEANOGRAPHY</u>: Atlantic Ocean, some sediment patterns visible.
3127	12	34 35N	76 40W	0	Normal	40	1500	16	G-21	15	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u>: United States, North Carolina, Cape Lookout, Pamlico Sound, Morehead City. <u>GEOLOGY/HYDROLOGY</u>: Coastal plain region. <u>AGRICULTURE</u>: Scattered field patterns. <u>FORESTRY</u>: Mixed pine/hardwood, coastal grasses. <u>METEOROLOGY</u>: Alto-cumulus. <u>OCEANOGRAPHY</u>: Atlantic Ocean, some small patterns observable, sediment plume visible seaward from Cape Lookout.
3128	12	35 04N	75 40W	0	Normal	40	1501	116	G-21	30	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: United States, North Carolina, Capes Lookout, Hatteras and Henry, Pamlico and Albemarle Sounds, Morehead City, Elizabeth City, Virginia Beach and Norfolk. <u>GEOLOGY/HYDROLOGY</u>: Coastal plain region. <u>AGRICULTURE</u>: Scattered field patterns. <u>FORESTRY</u>: Coastal marsh grass with lowland hardwood forests. <u>METEOROLOGY</u>: Alto-cumulus. <u>OCEANOGRAPHY</u>: Atlantic Ocean, sedimentation patterns in the nearshore zone.

* NADIR POINT OF CAMERA

A-26

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3129	Mar 12	37 00N	75 00W	0	Normal	40	1501	115	G-21	70	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina looking north to Long Island and New England, Capes Henry, Charles, Henlopen and Mar, Chesapeake and Delaware Bays, Norfolk. GEOLOGY/HYDROLOGY: Coastal plain region. FORESTRY: Coastal marsh areas. METEOROLOGY: Alto-cumulus, strato-cumulus, snow cover in Delaware and portions of New Jersey. OCEANOGRAPHY: Atlantic Ocean, some sediment patterns visible.
3130	12	14 57N	24 22W	0	Normal		1514	99	K-0	5	Obl.	GEOGRAPHY/CARTOGRAPHY: Cape Verde Islands, Fogo, Sao Tiago, and Maio Islands, Point Vermelharie, Villages of Sao Filipe, Praia Turalaf and Santo Antinio. GEOLOGY/HYDROLOGY: Volcanic island chain. METEOROLOGY: Cirro-cumulus. OCEANOGRAPHY: East Atlantic Ocean, some current patterns visible near the islands.
3131	12	01 50N*	00 10W	10	Normal	40	1521	117		90	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Gulf of Guinea. METEOROLOGY: Alto-stratus, cumulo-nimbus, cirrus.
3132	12	01 10N*	01 10E	10	Normal	40	1521	117		90	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Gulf of Guinea. GEOLOGY/HYDROLOGY: Sedimentary coastal plain. METEOROLOGY: Cirrus, alto-stratus, cumulus humilis, cumulo-nimbus.
3133	12	35 30N	119 00W	80	Normal	37	1627	132	G-18	30	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, California, Nevada, Sierra Nevada, Death Valley, Mohave Desert, San Joaquin Valley, Rosamond and Rogers Lakes, Bakersfield. GEOLOGY/HYDROLOGY: Complex igneous mountain ranges and alluvial lowland plains. AGRICULTURE: Several areas of heavy cultivation. FORESTRY: Desert shrubform with mixed conifers at higher elevations. METEOROLOGY: Alto-cumulus, strato-cumulus, nimbo-stratus, extensive snow cover in mountain and higher plateau areas.

* NADIR POINT OF CAMERA

A-27

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point Latitude deg. min.	Principal Point Longitude deg. min.	Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
3134	Mar 12	35 20N	118 10W	80	Normal	37	1627	130	G-18	20	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, California, Nevada looking northeast, Sierra Nevada, Mohave Desert, Death Valley, San Joaquin Valley, Rosamond and Rogers Lakes, Bakersfield. GEOLOGY/HYDROLOGY: Complex igneous mountain ranges and fertile alluvial plains. AGRICULTURE: Several large concentrations of field patterns. FORESTRY: Desert shrubform with mixed conifers at higher elevations. METEOROLOGY: Strato-cumulus, alto-cumulus, extensive snow cover in mountain and higher plateau areas.
3135	12	36 00N	115 10W	60	Normal	37	1628	129	G-18	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Nevada, California, Utah, Lake Mead, Colorado River, Great Basin Mountain Ranges, Las Vegas. GEOLOGY/HYDROLOGY: Complex igneous mountains, tertiary volcanics and alluvial deposits. AGRICULTURE: Heavy concentration of cultivated field patterns along Colorado River. FORESTRY: Desert shrubform with mixed conifers at higher elevations. METEOROLOGY: Cirrus, snow cover in mountain and high plateau areas.
3136	12	36 00N	113 33W	60	Normal	37	1628	128	G-18	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Nevada, Arizona, Utah, Lake Mead, Colorado River, Great Basin Mountain Ranges, Black and Hualpai Mountains. GEOLOGY/HYDROLOGY: Complex igneous mountains, tertiary volcanics and alluvial basins. AGRICULTURE: Field patterns along Colorado River. FORESTRY: Desert shrubform with mixed conifers at higher elevations. METEOROLOGY: Alto-cumulus, strato-cumulus, snow cover in mountains and higher plateau areas.

* NADIR POINT OF CAMERA

A-28

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3137	Mar 12	35 30N	112 35W	60	Normal	37	1628	126	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Utah, Colorado River, Grand Canyon, Coconino Plateau, Juniper Mountains, Town of Prescott. GEOLOGY/HYDROLOGY: Basement complex mountains, tertiary volcanics and alluvial deposits. AGRICULTURE: Range lands. FORESTRY: Mixed conifers. METEOROLOGY: Strato-cumulus.
3138	12	34 55N	112 05W	60	Normal	37	1629	125	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Utah, Colorado River, Grand Canyon, Coconino Plateau, San Francisco Peaks, Mogollon Rim, Town of Prescott and Flagstaff. GEOLOGY/HYDROLOGY: Basement complex mountains, tertiary volcanics and alluvial plains. AGRICULTURE: Grazing lands. FORESTRY: Mixed stands of conifers. METEOROLOGY: Strato-cumulus, snow cover in mountain and high plateau areas.
3139	12	35 10N	111 56W	60	Normal	37	1629	124	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Utah, Colorado, and Little Colorado Rivers, Colorado Plateau, Painted Desert, Grand Canyon, Glen Canyon Reservoir, Mogollon Rim, Town of Flagstaff. GEOLOGY/HYDROLOGY: Basement complex mountains, tertiary volcanics and alluvial plains. AGRICULTURE: Grazing lands. FORESTRY: Mixed conifer stands. METEOROLOGY: Strato-cumulus, snow cover in mountain and high plateau areas.
3140	12	35 50N	112 00W	60	Normal	37	1629	122	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Utah, Colorado River, Colorado Plateau, Painted Desert, Grand Canyon, Mogollon Rim, San Francisco Peaks, Town of Flagstaff. GEOLOGY/HYDROLOGY: Basement complex mountains, tertiary volcanics and alluvial plains. AGRICULTURE: Grazing lands. FORESTRY: Mixed conifers. METEOROLOGY: Strato-cumulus, snow cover in mountain and high plateau areas.

* NADIR POINT OF CAMERA

A29

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.								
3141	Mar 12	35 40N	106 30W	Normal	40	1630	121	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, Colorado, Rio Grande River, San Juan, Manzano, and Sangre de Cristo Mountains, Colorado Plateau, Cities of Albuquerque and Santa Fe. GEOLOGY/HYDROLOGY: Basin and Range Provinces of tertiary volcanics and alluvial plains. AGRICULTURE: Grazing lands. FORESTRY: Mixed conifer. METEOROLOGY: Strato-cumulus, cumulus humilis, snow cover in mountain and high plateau areas.
3142	12	35 34N	106 26W	Normal	40	1630	120	G-19	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, Colorado, Rio Grande River, San Juan, Manzano, and Sangre de Cristo Mountains, Colorado Plateau, Cities of Albuquerque and Santa Fe. GEOLOGY/HYDROLOGY: Basin and Range Provinces, of tertiary volcanics and alluvial plains. AGRICULTURE: Grazing lands. FORESTRY: Mixed conifers. METEOROLOGY: Strato-cumulus, cumulus humilis, snow cover in mountain and high plateau areas.
3143	12	33 41N	101 47W	Normal	45	1631	118	G-19	0	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Escabado Plain, Cities of Lubbock and Plainview. GEOLOGY/HYDROLOGY: Sedimentary elevated limestone plains capping the lower gypsum and red bed plains. AGRICULTURE: Heavy field pattern concentration, extensive cultivation. FORESTRY: Grass lands with scattered shrubform. METEOROLOGY: Cirro-cumulus.
3144	12	33 42N	100 50W	Normal	45	1631	118	G-19	20	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Caprock Escarpment, White River, Area east of Lubbock. GEOLOGY/HYDROLOGY: Sedimentary elevated limestone plains capping the lower gypsum and red bed plains. AGRICULTURE: Heavy field pattern concentration, extensive cultivation. FORESTRY: Grasslands with scattered shrubform. METEOROLOGY: Cirro-cumulus.

* NADIR POINT OF CAMERA

A-30

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude ft. or m.	WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3145	12	33 45N	100 00W	50	Normal	45	1631	117	G-19	35	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Caprock Escarpment, White and Pease Rivers. GEOLOGY/HYDROLOGY: Limestone elevated limestone plains capping the lower Cynal and redbed plains. AGRICULTURE: Heavy field pattern concentration, extensive cultivation. FORESTRY: Grasslands with scattered shrubform. METEOROLOGY: Cirro-cumulus, alto-cumulus.
3146	12	33 45N	96 43W	0	Normal	45	1632	114	G-20	50	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Oklahoma, Lake Texoma, Towns of Durant, Denison and Sherman. GEOLOGY/HYDROLOGY: Inland region of the coastal plain. AGRICULTURE: Scattered cultivation, intermixed with range lands. FORESTRY: Grasslands with hardwood bottomlands. METEOROLOGY: Cirro-cumulus.
3147	12	36 00N	81 30W	0	Normal	53	1635	104	G-21	25	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Appalachian Mountains looking northeast from Birmingham, Alabama into West Virginia, Virginia, Maryland, and Pennsylvania, Cities of Atlanta, Chattanooga, Asheville, and Knoxville. GEOLOGY/HYDROLOGY: Folded Appalachian sedimentary mountains and plateau region. AGRICULTURE: Scattered cultivation intermixed with range land. FORESTRY: Mixed pine/hardwood stands with primarily hardwood bottomland. METEOROLOGY: Cirro-cumulus.
3148	12	32 30N	80 50W	0	Normal	55	1635	104	G-21 H-25	0	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Georgia, South Carolina, Savannah River, Port Royal and St. Helen Sounds, Lake Moultrie, Cities of Savannah, Charleston and Myrtle Beach. GEOLOGY/HYDROLOGY: Dissected emergence coastal plain region. AGRICULTURE: Extensive cultivation. FORESTRY: Mixed pine/hardwood with hardwood bottomland. OCEANOGRAPHY: Atlantic Ocean, sediments from outflowing streams.

* NADIR POINT OF CAMERA

A-31

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
	Mar											
3149	12	20 20S*	11 30	80	Dark	15	1702	163	P-3	50	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Southwest Africa near Cape Fria. <u>METEOROLOGY</u> : Cumulo-nimbus, cumulus congestus. <u>OCEANOGRAPHY</u> : Some swell patterns visible.
3150	12	21 15S*	12 40E	80	Dark	15	1702	163	P-3	40	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Southwest Africa near Cape Fria. <u>METEOROLOGY</u> : Cumulo-nimbus, cumulus congestus. <u>OCEANOGRAPHY</u> : Some swell patterns visible.
3151	12	21 50S*	14 00E	40	Dark	15	1702	163	P-3	50	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : Southwest Africa near Cape Fria. <u>METEOROLOGY</u> : Cumulo-nimbus, cumulus congestus.
3152	12											Astronaut David Scott
3153	12											Astronaut Rusty Schweickert
3154	12											Astronaut Jim McDivitt
3155	12											Astronaut David Scott
3156	12											Astronaut Rusty Schweickert
3157	12	05 35S	81 05W	0	Normal	45	2127	125	M-25	20	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u> : South America, Peru, Paita Negro, Agulja, and Parana, Secura Desert, Towns of Riura and Sullana, Pacific Ocean. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain region showing the prevailing wind direction of the arid area. <u>AGRICULTURE</u> : Some cultivation along major chains. <u>FORESTRY</u> : Primarily desert shrubform. <u>METEOROLOGY</u> : Alto-cumulus, cumulo-nimbus, cirro-cumulus.
3158	12	07 01S*	79 42W	0	Normal	45	2127	127	M-25 N-25	70	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : South America, Peru, Cajamarca Province, Andes Mountains. <u>GEOLOGY/HYDROLOGY</u> : Complex mountains of the Andes. <u>FORESTRY</u> : Primarily grass with scattered deciduous shrubform. <u>METEOROLOGY</u> : Cumulo-nimbus, cumulus congestus, cirrus fibratus.

* NADIR POINT OF CAMERA

A-32

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E

AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3159	Mar 12	11 00S	77 30W	0	Normal	45	2128	132	N-25	55	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Peru. Paracas Peninsula, Cities of Arequipa, Callao, Lima, and Pisco, Andes Mountains, Pacific Coast. GEOLOGY/HYDROLOGY: Complex mountains of the Andes and submergence coastline region. FORESTRY: Deciduous shrubform. METEOROLOGY: Cirro-cumulus, cirrus fibratus, cumulus humilis, cumulus congestus, cumulo-nimbus, extensive cloud cover on eastern side of mountains.
3160	12	09 00S*	76 35W	40	Normal	40	2128	132	N-25	50	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Andes Mountains. GEOLOGY/HYDROLOGY: Complex mountains which are highly fractured. AGRICULTURE: Possible cultivation in Ucayali River vicinity. FORESTRY: Deciduous shrubform grading to broadleaf evergreen on eastern slopes. METEOROLOGY: Cumulo-nimbus with anvil, cumulus congestus.
3161	12	09 25S*	76 05W	40	Normal	40	2128	133	N-25	55	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Area east of Andes Mountains. GEOLOGY/HYDROLOGY: Complex mountain region which is highly fractured. AGRICULTURE: Possible cultivation along Ucayali River. FORESTRY: Deciduous shrubform changing to broadleaf evergreen. METEOROLOGY: Cumulo-nimbus with anvil, cumulus congestus, cumulus humilis.
3162	12	09 40S*	75 40W	40	Normal	40	2129	133	N-25	40	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Andes Mountains, Ucayali River vicinity. GEOLOGY/HYDROLOGY: Complex mountain and plateau region. AGRICULTURE: Field patterns & crop terraces. FORESTRY: Broadleaf evergreen forests. METEOROLOGY: Cumulo-nimbus with anvil, cumulus humilis, cumulus congestus.

* NADIR POINT OF CAMERA

A-33

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E
AS 9-20

Frame No.	Date	Principal Latitude deg. min.	Principal Longitude deg. min.	Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
3163	Mar 12	09 55S*	75 10W	40	Normal	40	2129	133	N-25	65	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, area east of Andes Mountains, Ucayali River. GEOLOGY/HYDROLOGY: Meandering braided river adjacent to the mountain range. AGRICULTURE: Field patterns along drainage. FORESTRY: Dense broadleaf evergreen. METEOROLOGY: Squall line, cumulo-nimbus with anvil or false cirrus, cumulus humilis.
3164	13	10 00S	74 00W	40	Normal	40	2129	134	N-25	70	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, intersection of the Tambo, Urubamba, and Ucayali Rivers, Villages of Atalaya and Unini. GEOLOGY/HYDROLOGY: Braided river adjacent to the complex mountain range. FORESTRY: Dense broadleaf evergreen. METEOROLOGY: Cumulo-nimbus with anvil, cirrus spissatus, cumulus congestus.
3165	12	12 00S	73 00W	40	Normal	40	2129	136	N-25	25	Vert.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Area east of Andes Mountains, Tambo, Urubamba, and Ucayali Rivers. GEOLOGY/HYDROLOGY: Complex mountains showing consequent drainage from the higher elevations. FORESTRY: Dense broadleaf evergreen. METEOROLOGY: Cumulus humilis, cirrus fibratus.
3166	12	14 00S	70 00W	0	Normal	35	2130	139	N-25 N-26 P-26	75	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Bolivia, Lake Titicaca. GEOLOGY/HYDROLOGY: Complex mountains with a large tectonic depression (lake) formed in the origin of the range. FORESTRY: Broadleaf shrubform and grass changing to dense broadleaf evergreen on eastern slopes. METEOROLOGY: Cumulo-nimbus, cumulus humilis, cumulus congestus, cirrus spissatus.
3167	12	14 30S	67 30W	0	Normal	35	2130	141	N-25 N-26 P-26	65	Obl.	GEOGRAPHY/CARTOGRAPHY: South America; Peru, Bolivia; Lake Titicaca, City of La Paz. GEOLOGY/HYDROLOGY: Complex mountains with a large tectonic depression (lake) formed in the origin of the range. FORESTRY: Broadleaf shrubform and grasslands. METEOROLOGY: Cumulo-nimbus with anvil; alto-cumulus; cumulus humilis; cirrus spissatus.

* NADIR POINT OF CAMERA

A-34

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3168	Mar 12	15 00S	69 00W	0	Normal	35	2131	144	N-25	55	Obl.	GEOGRAPHY/CARTOGRAPHY: South America, Peru, Bolivia, Lake Titicaca and Paepe, Cities of La Paz and Oruro. GEOLOGY/HYDROLOGY: Complex mountains with a large tectonic depression (lake) formed in the origin of the range. FORESTRY: Scattered shrubform with grass. METEORLOGY: Cumulo-nimbus, cumulus congestus, cumulus humilis.
3169	12			0	Normal					70	Obl.	GEOGRAPHY/CARTOGRAPHY: South America METEORLOGY: Cumulo-nimbus, cumulus humilis, cirrus spissatus, nimbo-stratus.
3170	12			0	Light					75	Obl.	GEOGRAPHY/CARTOGRAPHY: South America. METEORLOGY: Cumulo-nimbus, cumulus congestus, cumulus humilis, nimbo-stratus.
3171	12			0	Light					50	Obl.	GEOGRAPHY/CARTOGRAPHY: South America. METEORLOGY: Cumulo-nimbus, alto-cumulus, cirro-cumulus, cumulus congestus.
3172	12			0	Light					40	Obl.	GEOGRAPHY/CARTOGRAPHY: South America. METEORLOGY: Cirro-cumulus, cumulus congestus, cirrus spissatus.
3173	12			0	Normal				H-10 H-11	5	Obl.	GEOGRAPHY/CARTOGRAPHY: Asia, Nepal, Tibet, India, Himalayan Mountains. GEOLOGY/HYDROLOGY: Complex mountain structure of the Himalayas. METEORLOGY: Extensive snow cover in mountain areas.
3174	13	30 42N	121 22E	0	Dark				H-12	50	Obl.	GEOGRAPHY/CARTOGRAPHY: China, Chekiang Province, Hangchow Bay, Lake Hu, Mouth of Yangtze River, Cities of Shanghai, Hangchow, and Ningpo. GEOLOGY/HYDROLOGY: Shoreline of emergence and sedimentation outflow of the delta from the coastal plain. METEORLOGY: Alto-cumulus, Strato-cumulus, cirrus fibratus.

* RADAR POINT OF CAMERA

A-35

HANDHELD COLOR PHOTOGRAPHS

MAGAZINE E
AS 9-20

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3175	Mar 13											Sunrise limb shot.
3176	13	19 30N	28 30E	50	Normal		1050	97	J-5 H-5	0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, United Arab Republic, Sudan, Red Sea, Nile River, Gulf of Suez, Aswan Dam, City of Wadi Halfa. GEOLOGY/HYDROLOGY: Libyan plateau and erg plain region. FORESTRY: Desert shrubform.
3177	13	19 38N	30 24E	50	Normal		1050	97	J-5 H-5	5	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, United Arab Republic, Sudan, Red Sea, Nile River, Gulf of Suez, Aswan Dam, City of Wadi Halfa. GEOLOGY/HYDROLOGY: Libyan plateau and erg plain region. FORESTRY: Desert shrubform. METEOROLOGY: Cirro-cumulus.

* NADIR POINT OF CAMERA

A-36

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3178												Command Module
3179												Lunar Module
3180												Lunar Module
3181												Lunar Module
3182												Lunar Module
3183												Lunar Module
3184												Lunar Module
3185												Lunar Module
3186												Lunar Module
3187												Lunar Module
3188												Lunar Module
3189												Lunar Module
3190												Lunar Module approaching a front
3191												Lunar Module over a front
3192												Lunar Module over a front
3193												Lunar Module over a front
3194												Lunar Module over a front
3195												Lunar Module over a front
3196												Lunar Module over a front
3197												Lunar Module over a front
3198												Lunar Module over a front
3199												Lunar Module over a front
3200												Lunar Module over a front

* NADIR POINT OF CAMERA

A-37

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC-WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3201												Lunar Module over a front
3202												Lunar Module over a front
3203												Lunar Module over a front
3204												Lunar Module
3205												Lunar Module
3206												Lunar Module
3207												Lunar Module, clouds
3208												Lunar Module, clouds
3209												Lunar Module, clouds
3210												Lunar Module, clouds
3211												Lunar Module, clouds
3212												Lunar Module, clouds
3213												Lunar Module, clouds
3214												Lunar Module, clouds
3215												Lunar Module, clouds
3216												Lunar Module, clouds
3217												Lunar Module, clouds
3218												Lunar Module, clouds
3219												Lunar Module
3220												Lunar Module
3221												Lunar Module, clouds
3222												Lunar Module, clouds
3223												Lunar Module, clouds

* NADIR POINT OF CAMERA

A-38

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3224												Lunar Module, clouds
3225												Lunar Module, clouds
3226												Lunar Module, clouds
3227												Lunar Module, clouds
3228												Lunar Module, clouds
3229												Lunar Module, clouds
3230												Lunar Module, clouds
3231												Lunar Module, clouds
3232												Lunar Module, clouds
3233												Lunar Module, clouds
3234												Lunar Module, clouds
3235												Lunar Module, clouds
3236												Lunar Module, clouds
3237												Lunar Module, clouds
3238												Lunar Module, clouds
3239												Lunar Module, clouds
3240												Lunar Module, clouds
3241												Lunar Module, clouds
3242												Lunar Module, clouds
3243												Lunar Module, clouds
3244												Lunar Module, clouds
3245												Lunar Module
3246												Lunar Module

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* NADIR POINT OF CAMERA

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3247	Mar											Lunar Module
3248												Lunar Module
3249												Lunar Module
3250												Lunar Module
3251												Lunar Module
3252												Lunar Module
3253												Lunar Module
3254												Lunar Module, clouds
3255												Limb shot
3256	8	21 32N*	109 40W	0	Normal	30	1522	121	J-24	20	Obl.	GEOGRAPHY/CARTOGRAPHY: Mexico, Lake of the Chapul, towns of Shanayo, Jiquilpan, La Barca, and Sayula, City of Guadalajara under clouds. GEOLOGY/HYDROLOGY: Complex mountain region. METEOROLOGY: Strato-cumulus, alto-cumulus.
3257	8	32 56N*	45 18W	9	Normal	52	1535	126		90	Obl.	GEOGRAPHY/CARTOGRAPHY: Atlantic Ocean. METEOROLOGY: Cumulo-nimbus with anvils, cumulus congestus, cumulus humilis.
3258	8	32 50N*	44 50W	9	Normal	52	1535	126		90	Obl.	GEOGRAPHY/CARTOGRAPHY: Atlantic Ocean. METEOROLOGY: Cumulo-nimbus with anvils, cumulus congestus, cumulus humilis.
3259	8	21 00N*	07 30W	0	Normal	40	1544	125		6	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Mauritania, Sahara Desert. GEOLOGY/HYDROLOGY: Erg plains and adjacent plateau with numerous sebkha's. METEOROLOGY: Cirrus fibratus.
3260	8	20 42N*	07 00W	0	Normal	40	1544	125		0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Mauritania, Sahara Desert. GEOLOGY/HYDROLOGY: Emerging plains of longitudinal dunes.

* NADIR POINT OF CAMERA

A-40

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3261	Mar 8	20 00N*	05 00W	0	Normal	40	1544	125		0	Obl.	GEOGRAPHY/CARTOGRAPHY: Africa, Mauritania, Sahara desert. GEOLOGY/HYDROLOGY: Erg plains of longitudinal dunes.
3262	8	27 27N	114 13W	0	Normal	40	1707		H-22	15	Vort.	GEOGRAPHY/CARTOGRAPHY: Baja California, Pointa Baja, San Antonio, San Carlos and Blanca, Bays of the Rosary and San Luis Gonzaga, San Pedro Mountains, Villages of Rosario, San Fernando, and El Marmol. GEOLOGY/HYDROLOGY: Complex mountains and dissected plateau region of tertiary volcanics and alluvial deposits. FORESTRY: Scattered desert shrubform. METEOROLOGY: Cirro-cumulus, Strato-cumulus. OCEANOGRAPHY: Pacific Ocean, Gulf of California, depth variations visible along coastlines.
3263	8	32 57N	115 46W	0	Normal	35	1708		G-18	25	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Mexico, Southern California, Salton Sea, Gulf of California, Colorado River delta, Chocolate and Juarez Mountains, Imperial Valley, City of San Diego, Towns of El Centro and Mexicali. GEOLOGY/HYDROLOGY: Complex mountains and dissected plateau region of tertiary volcanics and alluvial deposits in the valley and lower regions. AGRICULTURE: Extensive cultivation, very complex field pattern concentration. FORESTRY: Scattered desert shrubform with some coniferous forest stands at higher elevations. METEOROLOGY: Cirro-cumulus, Strato-cumulus, snow cover in Sierra Nevada Mountains. OCEANOGRAPHY: Pacific Ocean, Gulf of California, possible depth variations in the Gulf of California.

* NADIR POINT OF CAMERA

A-41

HANDHELD COLOR PHOTOGRAPHS

MAGAZINE B

AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						No.	No.			
3264	Mar 8	33 10N	106 40W	0	Normal	42	1709			G-19	35	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, White Sands, Rio Grande, San Andres and Sacramento Mountains, Tularosa Valley, Town of Alamogordo. GEOLOGY/HYDROLOGY: Complex igneous and sedimentary mountains with quaternary alluvium in the lower plains. FLORA: Scattered shrubform with mixed coniferous stands on higher elevations. METEOROLOGY: Cirro-cumulus, alto-cumulus.
3265	8	31 50N	106 25W	0	Normal	45	1709			G-19	60	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, Texas, Pecos River, Alamogordo Reservoir, Estacado Plains. GEOLOGY/HYDROLOGY: Central plains region of sedimentary beds. AGRICULTURE: Extensive cultivation intermixed with range lands. FORESTRY: Scattered low shrubform and grass. METEOROLOGY: Nimbo-stratus, snow cover in Texas Panhandle region.
3266	8	33 56N*	84 31W	90	Normal	50	1715			G-21	15	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Georgia, City of Atlanta. GEOLOGY/HYDROLOGY: Boundary of the Piedmont complex mountain region and the sedimentary coastal plain. AGRICULTURE: Scattered, but intense cultivation patterns. FORESTRY: Mixed pine/hardwood. METEOROLOGY: Cirro-cumulus, cumulus humilis.
3267	8	33 52N	84 37W	90	Normal	50	1715			G-21	20	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Georgia, region. GEOLOGY/HYDROLOGY: Sedimentary coastal plain region. AGRICULTURE: Scattered, irregular shaped field patterns, intense cultivation. FORESTRY: Mixed pine/hardwood. METEOROLOGY: Cirro-cumulus, cumulus humilis.

A-42

* NADIR POINT OF CAMERA

65

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3268	Mar 8	33 52N	84 33W	90	Normal	50	1715		G-21	20	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Georgia, City of Atlanta. GEOLOGY/HYDROLOGY: Sedimentary coastal plain region. AGRICULTURE: Intense cultivation, field patterns scattered and irregular in shape. FORESTRY: Mixed pine/hardwood with dense hardwood bottomland. METEOROLOGY: Cirro-cumulus, cumulus humilis.
3269	8	34 35N	83 05W	0	Normal	50	1715		G-21	5	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, South Carolina, Georgia, Hartwell Reservoir, Savannah River, Blue Ridge Mountains, Cities of Anderson and Greenville. GEOLOGY/HYDROLOGY: Atlantic sedimentary coastal plain adjacent to the complex mountains of the Piedmont and Blue Ridge province. AGRICULTURE: Intense cultivation, extensive irregular shaped field patterns. FORESTRY: Mixed pine/hardwood with dense hardwood bottomlands. METEOROLOGY: Cirrus fibratus, snow cover in mountain regions.
3270	8	33 31N	80 14W	10	Normal	52	1716		G-21	5	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, South Carolina, Lake Moultrie and Marion, Cape Romain, Bull Bay, City of Charleston, Towns of Georgetown and Orangeburg. GEOLOGY/HYDROLOGY: Eastward dipping sedimentary coastal plain show typical consequent dendritic drainage. AGRICULTURE: Intense cultivation, extensive, irregular field patterns. FORESTRY: Mixed, pine/hardwood with dense hardwood bottomland and coastal associated grasses. METEOROLOGY: Cirro-cumulus. OCEANOGRAPHY: Atlantic Ocean, sediment in suspension indicate a southerly current flow in the nearshore zone.

* NADIR POINT OF CAMERA

A-43

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.										
3271	Mar 8	34 14N	79 00W	50	Normal	50	1716		G-21	2		Vert.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Cape Lookout and Fear, City of Wilmington, Towns of Georgetown, Myrtle Beach, Jacksonville, and Morehead City. GEOLOGY/HYDROLOGY: Sedimentary coastal plain with a dendritic drainage system. AGRICULTURE: Intense, scattered irregular field patterns. FORESTRY: Mixed pine/hardwood with dense hardwood bottomland and coastal grasses. METEOROLOGY: Stratus, Cirro-cumulus, cumulus humilis. OCEANOGRAPHY: Atlantic Ocean, seaward moving sediment plumes from capes.
3272	8	34 52N	78 34W	50	Normal	50	1716		G-21	2		Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, South Carolina, Neuse River, Towns of New Bern, Kinston, Washington and Greenville. GEOLOGY/HYDROLOGY: Coastal plain deposit and dendritic drainage system. AGRICULTURE: Intense cultivation, extensive, irregular field patterns. FORESTRY: Mixed pine/hardwood uplands with dense hardwood bottomlands and coastal grasses. METEOROLOGY: Cirrus. OCEANOGRAPHY: Atlantic Ocean, some tonal variations in nearshore zone.
3273	8	35 13N	77 10W	50	Normal	50	1716		G-21	3		Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Virginia, Cape Lookout, Hatteras and Henry, Pamlico and Albemarle Sounds, Cities of Norfolk, Virginia Beach, Rocky Mount, and Colaboro. AGRICULTURE: Intense cultivation, irregular shaped field patterns. FORESTRY: Mixed pine/hardwood uplands with dense hardwood bottomlands and coastal grasses. METEOROLOGY: Stratus, cirro-cumulus. OCEANOGRAPHY: Atlantic Ocean, some tonal variations visible.

A-44

* NADIP POINT OF CAMERA

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3274	Mar 8	35 44N	75 40W	60	Normal	50	1716		G-21	18	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Virginia, Delmarva Peninsula, Chesapeake Bay, Albemarle Sound, James River, Cities of Norfolk, Portsmouth, Newport News, Virginia Beach, Suffolk, and Elizabeth City. GEOLOGY/HYDROLOGY: Atlantic coastal plain with a shoreline of emergence followed by submergence and dendritic drainage. AGRICULTURE: Intense cultivation, irregular shaped field patterns. FORESTRY: Mixed pine/hardwood uplands with dense hardwood bottomlands and coastal grasslands. METEOROLOGY: Cirro-cumulus, stratus, alto-stratus, snow cover in northern part of the Delmarva Peninsula.
3275	8	37 14N	76 46W	60	Normal	50	1716		G-21	20	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Virginia, Delmarva Peninsula, Chesapeake Bay, Albemarle Sound, James River, Cities of Norfolk, Portsmouth, Newport News, Virginia Beach, Suffolk, and Elizabeth City. GEOGRAPHY/HYDROLOGY: Coastal plain region with a compound shoreline, lagoon, sandbars and dendritic drainage. AGRICULTURE: Extensive cultivation, irregular shaped field patterns. FORESTRY: Mixed pine/hardwood with dense hardwood bottomlands and coastal grasses. METEOROLOGY: Cirro-cumulus, stratus, alto-stratus, snow cover in northern part of the Delmarva Peninsula. OCEANOGRAPHY: Atlantic Ocean, some tonal variation visible, possible depth differences.

* NADIR POINT OF CAMERA

A-45

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	AS 9-21		Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						ONC WAC No.	% Cloud Cover		
3276	Mar 8	35 51N	76 06N	60	Normal	50	1717		G-21	15	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, North Carolina, Virginia, Cape Henry and Hatteras, Pamlico and Albemarle Sounds, Chesapeake Bay, Cities of Norfolk, Portsmouth, Virginia Beach, and Elizabeth City. GEOLOGY/HYDROLOGY: Coastal plain, dendritic drainage compound shoreline of sandbars and lagoons. AGRICULTURE: Extensive cultivation, irregular shaped field patterns. FORESTRY: Mixed pine/hardwood, with dense hardwood bottomland and coastal grasses. METEOROLOGY: Cirro-cumulus, stratus.
3277	8	33 30N*	75 40W	60	Normal	50	1717			90	Obl.	GEOGRAPHY/CARTOGRAPHY: Atlantic Ocean. METEOROLOGY: Cirrus fibratus, alto-cumulus.
3278	8	33 25N*	74 45W	60	Normal	50	1717			95	Obl.	GEOGRAPHY/CARTOGRAPHY: Atlantic Ocean. METEOROLOGY: Cirrus fibratus, alto-cumulus.
3279	8											Docking hatch window
3280	8											Docking hatch window
3281	8											Docking hatch window
3282	8	32 07N	107 07W	0	Normal	52	1826		G-19 H-23	3	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Mexico, New Mexico, Texas, White Sands, San Andres and Sacramento Mountains, Rio Grande River Valley, Tularosa Valley, Cities of El Paso, Ciudad Juarez, and La Cruces. GEOLOGY/HYDROLOGY: Basin and Range province, complex mountains, tertiary volcanics, alluvial deposits. AGRICULTURE: Very heavy cultivation along Rio Grande River. FORESTRY: Desert shrubform with some commercial species at higher elevations. METEOROLOGY: Cirro-cumulus, cumulus humilis.

* NADIR POINT OF CAMERA

A-46

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3283	Mar 8	34 13N	97 32W	60	Normal	52	1830		C-20	3	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Oklahoma, Arkansas, Texas, Ouachita Mountains, Lake Texoma, Oklahoma City, Wichita Falls, Chickasa, Iamison, Sherman, and McAlester. <u>AGRICULTURE</u> : Scattered field patterns. <u>FORESTRY</u> : Bottomland hardwood changing to mixed pine/hardwood in Ouachita Mountains. <u>METEOROLOGY</u> : Cirrus, snow cover in portions of southern ranges and southwestern Missouri.
3284	8	34 26N	95 37W	60	Normal	52	1830		C-20	3	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Arkansas, Oklahoma, and Texas, Ouachita and Boston Mountains, Arkansas River Valley, Lake Texoma, Towns of Durant, McAlester, Muskogee and Fort Smith. <u>GEOLOGY/HYDROLOGY</u> : Folded sedimentary mountains and central plains region. <u>AGRICULTURE</u> : Scattered field patterns. <u>FORESTRY</u> : Bottomland hardwoods changing to mixed pine/hardwood in Ouachita Mountains. <u>METEOROLOGY</u> : Cirrus, snow cover to the north of the Boston Mountains.
3285	8	31 40N*	82 50W	0	Normal	55	1834		H-24	40	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u> : United States, Florida, Cape San Blas, Horseshoe Point, Apalachee and Waccacassa Bays, City of Tallahassee, Gulf of Mexico. <u>GEOLOGY/HYDROLOGY</u> : Coastal plain region with a compound shoreline. <u>AGRICULTURE</u> : Heavy cultivation, numerous field patterns. <u>FORESTRY</u> : Mixed pine/hardwood. <u>METEOROLOGY</u> : Alto-cumulus, stratus.

* NADIR POINT OF CAMERA

A-47

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	AS 9-21		% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.						WAC No.	ONC No.			
3286	Mar 9	33 36N*	118 06W	0	Normal	47	1802	107	G-18	35	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u>: United States, California, Santa Catalina, Los Angeles, Long Beach, Newport Beach and Oceanside. <u>GEOLOGY/HYDROLOGY</u>: Coastal mountain complex and island mountain complex of volcanics and igneous intrusions. <u>AGRICULTURE</u>: Some field patterns visible through clouds. <u>FORESTRY</u>: Semi-dense, to dense shrubform with conifers at higher elevations. <u>METEOROLOGY</u>: Cumulo-nimbus with anvil, cumulus congestus, alto-cumulus. <u>OCEANOGRAPHY</u>: Pacific Ocean, sediment in suspension in nearshore zone.	
3287	9	32 55N	115 35W	40	Normal	47	1802	107	G-18	35	Vert.	<u>GEOGRAPHY/CARTOGRAPHY</u>: United States, Mexico, California, Salton Sea, Imperial Valley, All American Canal, Chocolate Mountains, Salada Lagoon, Grand Desert, Towns of El Centro and Mexicali. <u>GEOLOGY/HYDROLOGY</u>: Pacific border province of complex mountains tertiary volcanics and alluvial deposits. <u>AGRICULTURE</u>: Very complex pattern of cultivation, field patterns easily recognizable. <u>FORESTRY</u>: Scattered desert shrubform. <u>METEOROLOGY</u>: Alto-cumulus, cumulus congestus, cirro-cumulus.	
3288	9	31 38N	114 48W	40	Normal	47	1802	107	H-22	20	Obl.	<u>GEOGRAPHY/CARTOGRAPHY</u>: Gulf of California, northwestern New Mexico, Bahia de Aduar, Desierto del Altar. <u>GEOLOGY/HYDROLOGY</u>: Basin and Range province, desert erg plains, tertiary volcanic ranges.	

* NADIR POINT OF CAMERA

A-48

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B
AS 9-21

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Altitude n. mi.	ONC WAC No.	% Cloud Cover	Viewing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3289	Mar 9	29 52N	114 51W	50	Normal	47	1802	107	H-22	20	Obl.	GEOGRAPHY/CARTOGRAPHY: Baja California, Gulf of California, Colorado River Delta, Juarez and San Pedro Mountains. GEOLOGY/HYDROLOGY: Basement complex mountain region of fault blocks, and alluvial deposits. AGRICULTURE: Some cultivation along Colorado River. FORESTRY: Scattered desert shrubform with mixed conifers on western slopes of San Pedro Mountains. METEOROLOGY: Cumulus humilis, stratus, cirrus seicatus. OCEANOGRAPHY: Pacific Ocean, Gulf of California, some submarine topography and possible upwelling is visible in the Gulf of California.
3290	9	33 29N	112 26W	0	Normal	48	1803	106	G-19	30	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Phoenix and vicinity. GEOLOGY/HYDROLOGY: Volcanic and complex mountain ranges and quaternary alluvium deposits. AGRICULTURE: Heavy concentration of field patterns. FORESTRY: Desert shrubform with conifers at higher elevations. METEOROLOGY: Cirro-cumulus, cumulus congestus.
3291	9	32 56N	110 03W	0	Normal	48	1803	106	G-19	30	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, San Carlos Lake, Coolidge Dam, Gila River, Gila and Pinaleno Mountains. GEOLOGY/HYDROLOGY: Volcanic and complex mountain ranges with basins of alluvium. AGRICULTURE: Cultivated field patterns along Gila River. FORESTRY: Scattered desert shrubform with some conifers at higher elevations. METEOROLOGY: Cumulus congestus.

A-49

* NADIR POINT OF CAMERA

HANDHELD COLOR PHOTOGRAPHS
MAGAZINE B

Frame No.	Date	Principal Point		Percent Overlap	Image Evaluation	Sun Elevation	GMT	Air- tude n. mi.	ONC WAC No.	% Cloud Cover	View- ing Mode	Description
		Latitude deg. min.	Longitude deg. min.									
3292	Mar 9	32 15N	109 03W	60	Normal	48	1803	106	G-19	20	Obl.	GEOGRAPHY/CARTOGRAPHY: United States, Arizona, Wilcox, Pinaleno Mountains. GEOLOGY/HYDROLOGY: Volcanic and complex mountain ranges with basins of quaternary alluvium. AGRICULTURE: High concentration of field patterns along avenues of drainage. FORESTRY: Mixed conifers at higher elevations, desert shrubform otherwise. METEOROLOGY: Cumulus congestus, cumulus humilis.
3293	9	33 33N	105 57W	0	Dark	51	1804	106	G-19	20	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, New Mexico, White Sands, Sacramento and San Anures Mountains. Tularosa Valley, Town of Alamogordo. GEOLOGY/HYDROLOGY: Sedimentary mountain ranges, volcanic intrusives, elevated plateaus and alluvium deposits. AGRICULTURE: Scattered field patterns along drainage. FORESTRY: Desert shrubform with mixed conifers in Sacramento Mountains. METEOROLOGY: Cumulus congestus, snow cover in high elevations of Sacramento Mountains.
3294	9	33 46N	103 05W	0	Dark	53	1805	106	G-19	5	Vert.	GEOLOGY/HYDROLOGY: Staked Plains of limestone and numerous karst areas prevalent.
3295	9	33 25N	101 15W	0	Dark	53	1805	106	G-19	0	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Caprock Escarpment, Estacado Plain, Lubbock. GEOLOGY/HYDROLOGY: Limestone plateau escarpment adjacent to the red beds and gypsum plains. AGRICULTURE: Very extensive, wide spread, field patterns easily recognizable. FORESTRY: Scattered shrubform, range grass.
3296	9	33 03N	99 28W	20	Dark	53	1805	106	G-20	0	Vert.	GEOGRAPHY/CARTOGRAPHY: United States, Texas, Lake Kemp, Brazos River. GEOLOGY/HYDROLOGY: Central plains of sedimentary origin. AGRICULTURE: Very extensive, large percentage of land use under agriculture. FORESTRY: Scattered shrubform, range grass.

* NADIR POINT OF CAMERA

A-50